

UPM Fray Bentos

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY **2020**



UPM Fray Bentos

The pulp mill is located on the coast of the river Uruguay, 5 Km away from the city of Fray Bentos.

Construction of this state-of-the-art pulp mill began in 2005. The initial Environmental Authorization for Operation was granted by authorities on November 8th, 2007. Until June 2020, the environmental authority in Uruguay was the Ministry of Housing, Territorial Planning and Environment (MVOTMA) through the National Direction for the Environment (DINAMA). From June 9th, 2020 the environmental authority is the Ministry of Environment through the National Direction for Quality and Environmental Evaluation (DINACEA).

Through the use of modern techniques high quality pulp is efficiently produced, most of it for the Asian and European markets.

The annual capacity of the mill is of 1.3 million tons of bleached eucalyptus pulp. Wood procurement is under the responsibility of UPM Forestal Oriental, which has been pioneering the development of eucalyptus plantations in Uruguay for over 25 years, since 1990. UPM has a 91% ownership in the Fray Bentos pulp mill and 100% in UPM Forestal Oriental. The UPM mill complex also accommodates the operations of four chemical plants that supply the bleaching chemicals for the process. These plants are under the responsibility of Kemira, which operates three of them (hydrogen peroxide, sodium chlorate, chlorine dioxide) while the fourth (oxygen) is operated by Praxair.

Maintenance of pulp mill operations is outsourced to Andritz, which supplied most of the production equipment for the construction of the mill.



Production capacity	1,300,000 ADt
Personnel	241
Products	UPM Euca (bleached eucalyptus kraft pulp)
Bioenergy	Electricity
Certificates	<p>EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System ISO 50001 – Energy Management System ISO 22000 – Food Safety Management System ISO 45001 – Occupational Health and Safety Management System PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council®</p> <p>All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)</p>
Environmental labels	<p>EU Ecolabel Nordic Ecolabel</p> <p>UPM pulp products have the approval for use in EU Ecolabel and Nordic Ecolabel paper products.</p>



UPM Fray Bentos Environmental and Societal Responsibility 2020 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 2020. 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 2022.

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 18,000 people worldwide and our annual sales are approximately EUR 8.6 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com



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Review of year 2020

Performance

The Fray Bentos pulp mill continued to achieve in 2020 a high level of capacity utilization, maintaining its reliability in pulp quality as well as a high level of environmental performance.

One event with permit non-compliance occurred during the year. The mill's stormwater ponds are inspected routinely on weekly basis. During September 27th, October 4th and October 25th, 2020 inspections, pH values higher to 9 were measured in the pond located in wood handling area. On September 27th, due to heavy rains, material from a civil work that was taking place close to the pond, was washed out causing the high pH discharge. Neutralization of the pond was challenging; various chemical doses were required. While neutralizing, a cooling water pipeline at the wood handling area broke, the outflow caused the October 4th discharge to river from the wood handling stormwater pond with pH over the permit limit. On October 25th heavy rains caused the last discharge with high pH.

The non-compliant discharges did not pose any potential risk to the environment and corrective actions were implemented at the mill in agreement with the authorities.

Emissions into the air remained at good levels. Handling of malodorous gases was in accordance with internal targets.

UPM Fray Bentos pulp mill is self-sufficient in electrical consumption through the energy generated by burning black liquor.

The mill's emissions are within the ranges associated to Best Available Techniques (BAT) as established in the European Commission Implementing Decision of September 26th, 2014.

Environmental monitoring

UPM Fray Bentos mill is one of the most monitored pulp mills worldwide, with more than 130 control parameters cov-

ering Uruguay river (water and biology), air, soil, fauna, groundwater, noise, among others.

Environmental monitoring activities under the responsibility of UPM Fray Bentos and implemented by several external experts continue to show, thirteen years after the startup, that there is no negative impact on the environment related to the operation of the pulp mill.

Transparency

Press releases related to events at the mill that could affect the community are shared with the local press, follow-up commission, Uruguayan environmental authorities as well as published in UPM's corporate website.

During 2020 no sessions of the follow-up commission have been convened by the authorities.

In 2020, 7 inspections were carried out by the Scientific Committee (integrated by Uruguayan and Argentinian members of the Uruguay River Executive Commission (CARU), reaching 110 in total by December 2020. Results of the monitoring carried out during these

inspections are available in CARU's website.

Results of the environmental monitoring plan requested by Uruguayan environmental authorities are available in UPM's webpage.

Additional information on compliance with legal requirements can be found both in UPM's and DINAMA's webpages.

The environmental product declaration for Fray Bentos pulp was updated and made available to customers.

Since the mill's start up, it has been arranged a system of weekly visits to the site which is open to the general public free of charge. The aim of the visits is to share the Biofore vision by reinforcing the stakeholders engagement, showing the operations to the public. Since 2008, around 35,000 people from Uruguay and several other countries have visited our facilities. During 2020, due to Covid-19 pandemic and in order to preserve the health of people and comply with established protocols, no visits were received at the pulp mill site.



Federico Mantíñan
General Manager



Gervasio González
Environmental Manager

Responsibility figures 2020

Waste



53%

of total non-hazardous waste generated in 2020 have been used as soil amendments in plantations.



Water

Reduction in total phosphorus discharge per ton of pulp:

38%

Reduction in total nitrogen discharge per ton of pulp:

25%

Calculated comparing 2020 to 2019 performance.

Reduction in biological oxygen demand per ton of pulp:

38%

Reduction in total suspended solids discharge per ton of pulp:

42%

Calculated comparing 2020 to 2011 performance.

Environmental monitoring

Over **50,000**

water quality data in different points of the Uruguay River, allowing comparing the situation upstream, close to the mill's discharge and downstream, as well as the variation throughout time.

Over **55**

sample points monitored including river, underground water and soil, associated to the use of bark and wood waste, primary sludge and biosludge as soil amendments in plantations.

Environmental sustainability

45 environmental observations

By actively doing environmental observations and taking needed actions beforehand, we efficiently prevent Environmental deviations.

26 environmental rounds

carried out with subcontractors working within UPM Fray Bentos mill premises.



Biodiversity

UPM is the first private company in Uruguay to manage an area within the National System of Protected Areas.

12,309 ha

of conservation areas managed by UPM, covering native forest, grasslands, wetlands, riparian zones and palm areas.



Energy



93%

of fuels used in UPM Fray Bentos energy production during 2020 came from renewable sources.

Certified fibre



88%

of fibre used in pulp production was FSC and/or PEFC certified. UPM's target is to use only certified fibre by 2030.

Safety



Total Recordable Injury Frequency (TRIF):

3.4 injuries

per million hours worked.

(process areas: UPM employees & Contractors).

731

reported Safety Walks and Inspections

Safety walks are conducted with the aim of improvement.

1,009

Safety observations

Safety observation: identification of potentially unsafe working environment or unsafe working.

Employment



UPM Fray Bentos employed

241 people

directly.



Supply chain

95%

of raw material spend covered by UPM Supplier and Third Party Code (wood not included).



Community

18 projects

promoted by UPM Foundation in 2020.

- 49 communities involved.
- 12 NGOs in partnership.
- 1,732 participants.
- 57 UPM volunteers.
- 1,038 training hours.
- 406 teachers trained.

Taxes



Total tax impact approx.

USD 25 million

Related to Fray Bentos mill and forestry operations in Uruguay in 2020, including:

- Income taxes on salaries
- Corporate income taxes and Free Trade Zone fees
- Property taxes including real estate tax
- Value Added Tax cost

Air



Emissions into the air remained at very good levels, with all parameters within the conditions of the environmental permit.

Handling of malodorous gases from the production process was in accordance with 2020 internal targets.

In 2020, two external complaints related to odour events were recorded. One of them, which occurred on September 26th, was associated to disturbances in the malodorous gases handling due to a recovery boiler trip as a consequence of a disconnection of the mill's electrical grid to the national grid, lowering of the production process for unplanned repairs in a cooling water pipe. For the second event, which occurred on December 18th, no evidence of origin within the pulp mill could be found.

Usually the odour events during those periods had a duration of minutes with varying odour intensity.

Despite the nuisance created to people, odours originated at the pulp mill do not pose any potential risk to the environment or human health.

The mill continues to proactively communicate to the community, local press, national stakeholders and members of the follow-up commission when there will be a planned activity that might cause the emission of odorous compounds to the air, as well as answering openly all related questions from stakeholders. In 2020, 5 press releases were published.

Ambient air quality measurements show that the operation of the pulp mill has no significant effect on the concentrations of pollutants in the air. Concentrations of all measured parameters have remained below limits established by Uruguayan Environmental Authorities and within the limits established in the environmental permit and BAT.

Water

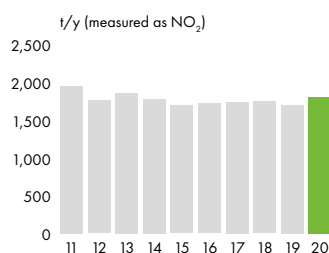


UPM Fray Bentos acquires raw water from the Uruguay River. The operations required about 0.95 m³ of water per second and generated about 0.72 m³ per second of treated effluent.

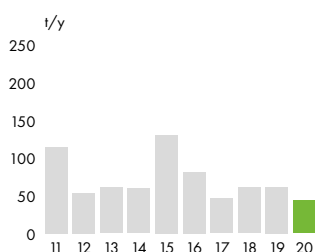
On September 27th, 2020, during routine inspection of storm water ponds, a pH value of 11 was measured in the pond located in wood handling area. Heavy rains dragged material from a civil work that was taking place in an area close to the pond. In the process of neutralization, a cooling water pipe-line in the wood handling area broke, the outflow caused a discharge with pH 10,4 measured on October 4th. Furthermore, on October 25th another heavy rain caused a discharge with pH 9,7. These pH values measured exceeded the upper permit limit established for effluent discharge (pH 9).

Authorities were informed, stormwater pond was neutralized in order to keep the pH values in the storm water ponds discharges within permit limits. These non-compliant discharges did not pose any potential risk to the environment. Furthermore, the mill's environmental risk analysis has been revised and updated.

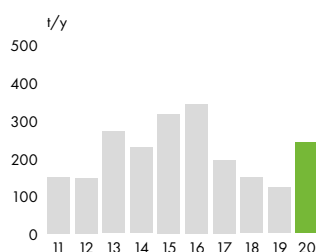
Nitrogen oxides, NO_x



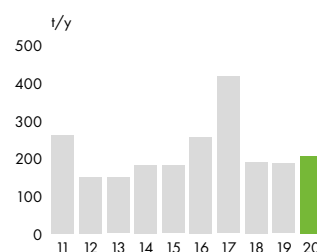
Sulphur dioxide, SO₂



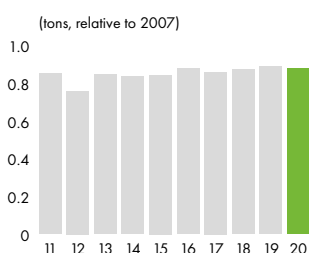
Dust



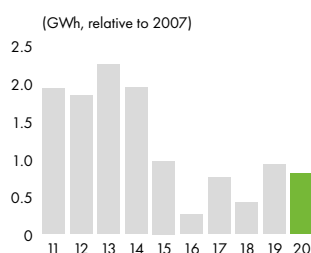
Biological oxygen demand, BOD₅



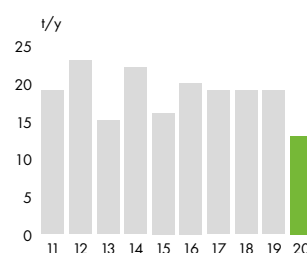
Evolution of fuel oil consumption



Evolution of electricity supplied to the national grid



Phosphorus, P



The 2020 annual average phosphorus load fulfilled the permit limit of 0.06 t/d. It was the lowest phosphorus discharge since the mill's start-up: 33,8 kg/d. This was the result, among others, of the measures implemented to optimize the operation of the phosphorus removal system since its start-up in 2015.

Water quality monitoring results show that there is no significant variation between the sampling points located upstream and downstream from the mill that could be caused by its operation. Variation in time is similar in all sampling points, either reference points or near receptors of the mill's effluents.

Fish monitoring has been carried out biannually since 2005 until 2019. Since 2020, the corresponding monitoring is carried out annually as agreed with national environmental authorities. Results continue to show that there is no decrease in the number of fish species, biomass or abundance in the zone of influence of UPM Fray Bentos mill's effluent discharge with respect to the reference area during baseline studies. Furthermore, the situation is the same all

three study areas, both upstream and downstream from the mill. The condition of fish caught has been observed to be good without any macroscopic deformities or abnormalities. There are no differences in the general condition of fish caught from the different study areas.

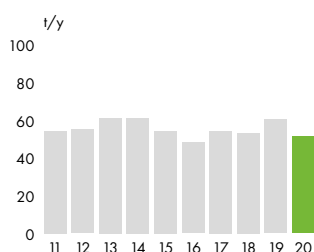
The fish bile investigations indicate that the concentrations of EOX, resinic acids and chlorophenolic compounds are within the variation limits as observed during the baseline studies. As for phytoosterols concentrations in fish bile, the trend shows an increase since 2007, equally in the three areas of study (upstream, area of influence of the mill's effluent discharge and downstream). Therefore, there are no indications of changes in the concentration levels caused by the effluent discharged from the UPM Fray Bentos pulp mill.

Muscle concentrations of dioxins, furans and PCBs were below the Total Daily Intake recommendations and, based on the observed concentrations and international recommendations there would be no limitations to human consumption of the studied fish.

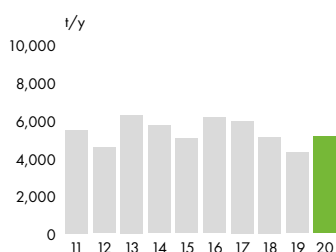


The results indicate that the effluent discharge from the UPM Fray Bentos mill has not caused any impacts on the fish community and species diversity, or on the exposure level of fish, as compared to the situation prior to the mill operation.

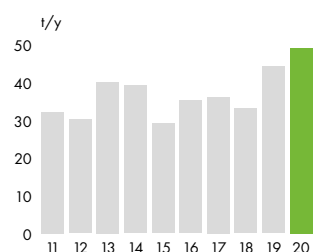
Nitrogen (inorganic), N



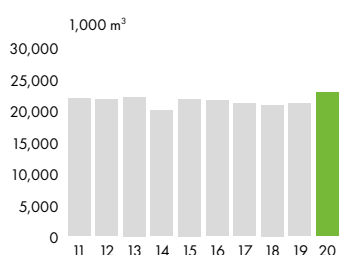
Chemical oxygen demand, COD



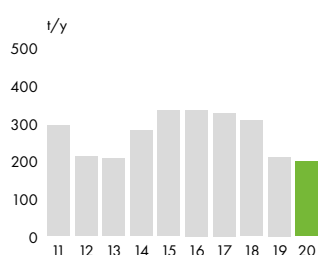
Adsorbable organic halogen compounds, AOX



Effluent flow (process wastewater)



Total suspended solids, TSS



Waste



The UPM Fray Bentos landfill site is located inside the mill complex. In 2020 the landfill received 24.882 t of waste on dry basis.¹⁾ This amount represents 32% of total non-hazardous waste generated at the Fray Bentos mill premises during 2020.

Green liquor dregs represented approximately 56% of the total dry weight of solid waste bound for the landfill site.

Wood waste (mainly bark and wood fines) continues to be returned to plantations as soil amendments, together with sludge from the primary clarifier and dry biosludge from the activated sludge system. These types of waste, in 2020, represent a total of 53,517 t on dry basis (53% of total non-hazardous waste generated at the mill).

In 2020, the Uruguayan Environmental Authority approved the use of dried mixed sludge (biosludge and phosphorus precipitation sludge) as soil amendment in UPM forestry plantations.

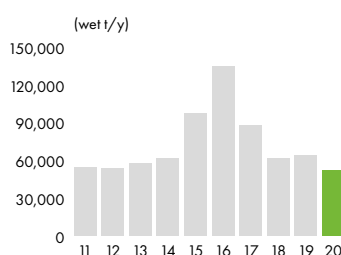
About 32% of the wood waste was used as a biofuel for electricity generation in external facilities during 2020.

Rio Negro city hall installed a waste sorting site where, through social cooperative, formalized sorters receive the following materials for subsequent commercialization: paper and cardboard, plastic, combustible waste and metals. Between November and December 2020, UPM Fray Bentos delivered in total 20 t of paper, cardboard, plastics and combustible waste.

The generation of hazardous waste in 2020 amounted to 123 t, representing 0.11% of total waste. More than 70% corresponded to filtration cake from the production of sodium chlorate at the chemical plant, empty "big bags" that used to contain hazardous chemicals, maintenance waste, used lubricating oils and used granular aluminum oxide.

¹⁾ Waste disposed of in Municipal landfill not included.

Solid waste to industrial landfill



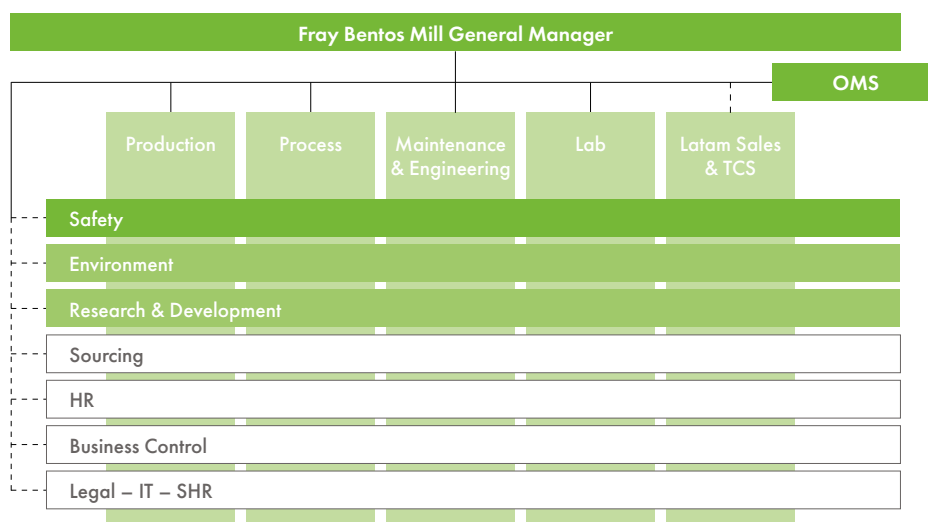
Organizational structure and emergency organization

Constant awareness of environmental issues is an integral part of UPM Fray Bentos mill's way of working. All employees are responsible for the effects their own field of operation has on the environment. Production Manager is responsible for the environmental performance achieved. The environmental manager coordinates environmental issues within the company, with authorities and with all partners.

As part of the Environmental Operational Management Plan, UPM Fray Bentos mill has a contingency plan approved by Uruguayan environmental authorities which describes the internal procedures to follow in case of environmental contingencies related to the mill operations as well as responsibilities and communication flowchart.

Safety manager together with the mill's safety supervisor and the fire chief, plans and supervises health & safety works

within the company, with authorities and partners. The mill has an operation plan and a program of activities setting out goals, safety targets and plans for achieving them. In the event of an emergency response, UPM Fray Bentos mill has a fire brigade made up of seventy brigadiers including mill engineers and technicians from UPM and other outsourced companies working within the mill boundaries (Andritz, Kemira, Linde). The brigadiers are strategically distributed in five shifts in accordance with the mill's operations. The fire brigade is continuously trained by qualified personnel. In 2020, seventy training sessions were carried out. Furthermore, emergency situations rehearsals are frequently conducted. During 2020, four rehearsals were carried out including: escape of a chemical in process area, fire inside the mill premises, rescue of a victim in height and rescue of man overboard, falling from the harbor's dock.



Societal responsibility

“#NosCuidamosEntreTodos Campaign”

In addition to the prevention measures implemented in all the operations, UPM participated as sponsor in the #NosCuidamosEntreTodos campaign in ColectaTe.com.uy together with national organizations and companies.

This initiative arose from a group of private sector companies from various sectors, who, in dialogue with the Uruguayan government, identified these critical inputs for health personnel to meet the increased demand.

As a result, more than \$5 million was raised, 31,000 diagnostic kits were imported, more than 6 ambulances and mechanical respirators were donated to health centers, more than 25,000 items were made for medical personnel and more than 2 million caps were donated to educational institutions.

The resources of the collection were managed by a committee integrated by the sponsoring companies. The equipment was donated to the Ministry of Public Health (MSP) which in turn allocated it to the public hospitals and health centers that most needed it.

Hospitals of Fray Bentos, Paso de los Toros and 56 polyclinics in rural areas receive donations of medical supplies from the UPM Foundation

In the context of the health situation caused by COVID-19, the UPM Foundation delivered to the hospitals of Fray Bentos, Paso de los Toros and 56 polyclinics in rural areas, the supplies and equipment requested by these institutions that will improve their positioning in the face of a possible increase in demand for services and care.



“Maintaining a close relationship with these institutions allowed us to know what their needs were in this context and to be able to contribute in this regard”, explained Magdalena Ibáñez, president of the UPM Foundation.

The Hospital of Paso de los Toros received four sputumometers, four manometers with flow meter and more than 200 on tunics and 200 face masks while the Hospital de Fray Bentos was given a laryngoscope.

In addition, some 3,000 face masks were sent to some 56 polyclinics in rural towns of Paysandú, Soriano, Colonia, Río Negro, Durazno, Florida, Cerro Largo and Tacuarembó through the departmental Primary Care Network (RAP).

“Formacion en Primera Infancia”

This project is led by Fundación Sofia. The aim of it is to teach 30 teachers and educators from 100% of institutions *CAIFS, Club de Niños” of Fray Bentos San Javier and Nuevo Berlin. It involves 168 hours of training. This program will be completed in 2021 in the interior of Río Negro department.

“Jovenes Inventores”

This project was led by NGO UY Robot. The aim of it is to promote STEAM learnership and robotics. It was done in High Schools 2, 3 and Technical University of Fray Bentos. Teachers trained how to use this way of teaching at school. The project included all materials (Robotics table) that have been kept at each institution.

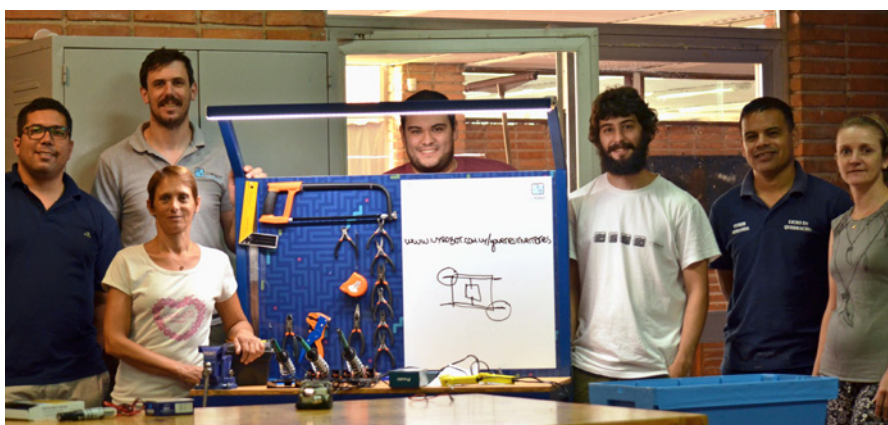


Photo taken in December 2019

Environmental parametres

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.

		2018	2019	2020
Production capacity	Pulp	1,300,000 t	1,300,000 t	1,300,000 t
Raw materials and additives	Wood	1)		
	Pulping and bleaching chemicals			
Energy¹⁾	Biogenic fuels	92%	92%	93%
	Fossil fuels	8%	8%	7%
Emission to air	Carbon dioxide, CO ₂ (fossil)	142,038 t	144,127 t	142,868 t
	Nitrogen oxides, NO ₂	1,745 t	1,697 t	1,800 t
	Sulphur dioxide, SO ₂	60 t	61 t	43 t
	Particulates Total	147 t	120 t	239 t
	Reduced sulphur, TRS	9 t	7 t	7 t
Water intake	Process and cooling water	27,849,377 m ³	27,963,847 m ³	30,048,538 m ³
Discharges to water	Process wastewater	20,790,932 m ³	21,100,626 m ³	22,811,405 m ³
	Process wastewater quality indicators			
	– Biochemical oxygen demand, BOD ₅	188 t	184 t	204 t
	– Chemical oxygen demand, COD	5,081 t	4,280 t	5,109 t
	– Suspended solids, TSS	306 t	209 t	197 t
	– Nitrogen, N (total)	53 t	60 t	51 t
	– Phosphorus, P (total)	19 t	19 t	13 t
	– Adsorbable organic halogen compounds, AOX	33 t	44 t	49 t
Waste²⁾	Non-hazardous waste			
	Waste to recycling, energy recovery and/or composting			
	– Sludges	15,378 t	15,372 t	14,669 t
	– Bark and wood waste	61,629 t	63,967 t	60,217 t
	– Green liquor dregs	–	–	14 t
	– Others	503 t	448 t	368 t
	Waste to landfill and incineration w/o energy recovery			
	– Green liquor dregs	16,834 t	16,225 t	17,660 t
	– Sludges	6,917 t	5,686 t	4,905 t
	– Others	6,305 t	6,767 t	2,318 t
	Hazardous waste	79 t	218 t	123 t
Total use of land		553 ha	553 ha	553 ha
	Total sealed area	50 ha	50 ha	50 ha
	Total nature-oriented area on site	503 ha	503 ha	503 ha
	Total nature-oriented area off-site ³⁾	1,550 ha	1,550 ha	1,550 ha

¹⁾ See UPM Corporate Environmental and Societal Responsibility Statement for more information.

²⁾ Dry weight

³⁾ Corresponds to Mafalda protected area, included in the National System of Protected Areas as a requirement for the mill's environmental authorization. This area is managed by UPM Forestal Oriental.



Environmental objectives

Among the objectives set for 2021, the following can be highlighted:

- Continue transparent and effective proactive communication of environmental issues to all stakeholders.
- Contribute to UPM's corporate commitment to environmental responsibility, including implementation of Clean Run campaign.
- Promote environmental awareness within the mill, its main suppliers and partners, and all subcontractors working in mill area.
- Comply with the key environmental indicators defined for 2021 (see below).

Performance against targets in 2020

	TARGET	PERFORMANCE*	
COD discharge to the river (annual average)	≤ 5 kg/ADt	Achieved	Stable operation
Effluent discharge to the river (annual average)	≤ 20 m ³ /ADt	Achieved	Stable operation
Total phosphorus discharge to the river (monthly average)	≤ 60 kg/d	Achieved	Optimization of phosphorus removal plant
Availability of strong odorous gases handling (annual average)	≥ 99.9%	Achieved	Stable operation
Availability of mild odorous gases handling (annual average)	≥ 99.5%	Achieved	Stable operation
Amount of permit exceedances	None	Not achieved	1 incident

* see page 6 for more details

Targets for 2021

	TARGET	FOCUS ACTIONS
COD discharge to the river (annual average)	≤ 5 kg/ADt	Stable operation without significant disturbances
Effluent discharge to the river (annual average)	≤ 20 m ³ /ADt	Stable operation without significant disturbances
Total phosphorus discharge to the river (annual average)	< 55 kg/d	Continue optimizing cleaning process, keeping good performance in phosphorus precipitation system
Availability of strong odorous gases handling (annual average)	≥ 99.9%	Stable operation without significant disturbances
Availability of mild odorous gases handling (annual average)	≥ 99.5%	Stable operation without significant disturbances
Amount of permit exceedances	None	Minimize algae growth in stormwater ponds



Revalidation statement

As an accredited environmental verifier (FI-V-0001), Inspecta Sertifointi Oy has examined the environmental management system and UPM Fray Bentos Environmental and Societal Responsibility 2020 statement as well as the information concerning UPM Fray Bentos in the Updated UPM Corporate Environmental and Societal Responsibility Statement 2020.

On the basis of this examination, the environmental verifier has herewith confirmed on 2021-04-09 that the environmental management system, the UPM Fray Bentos Environmental and Societal Responsibility 2020 statement and the information concerning UPM Fray Bentos in the Updated UPM Corporate Environmental and Societal Responsibility Statement 2020 are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.

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

UPM Fray Bentos

Ruta Vladimir Roslik Km. 307
65,000 Fray Bentos
Tel. +598 456 20100

For further information,
please contact:
Gervasio González
Environmental Manager
Tel. +598 99 789 400
gervasio.gonzalez@upm.com

Matias Martínez
Communications Manager
Tel. +598 99 371 339
matias.martinez@upm.com