

GORIČANE

ENVIRONMENTAL REPORT 2023

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Introduction

In 2023, Papermill Goričane met all the legislative requirements concerning emissions to the environment as required by the environmental permit for waste water, emissions to air and emissions of noise into the environment.

A major achievement in 2023 is the implementation of new software for tracking the type and amount of packaging used per type of product packaging. Based on the type of packaging, the product dimension (roll or pallet) and the formula set to calculate the weight of each specific packaging material, the software then provides us with the amounts of packaging used per product. The goal is to make sure the markings on the product label inform the customer about the type of packaging used. If required by the customer, the delivery form can also specify the weight per type of packaging used for a certain product.

As an operator of an IED device that may potentially cause environmental pollution of major extent, Papermill Goričane has owned a valid environmental permit since 2007. Due to amended environmental legislation, the permit has been under revision since 2018. In 2023, the Ministry of the Environment, Climate and Energy visited the papermill and combined it with oral proceedings pertaining to the explanation and supplementation of our responses to the requests from 2022. The status of the initial report on the situation of soil and groundwater pollution is still open.

In 2023, we also submitted a new IED application for the amendment of the environmental permit. The subject of the amendment is the registration of a new LOOS boiler and a change in the amount of accumulated annual industrial wastewater, resulting from the changes in our production programme and the regular operation of the Bosch boiler in the past few years.

Use of natural resources

Natural resources used for paper production include pulp, fillers and pigments (kaolin, chalk), well water and natural gas.

The rational consumption of natural resources is measured with the index of material loss from the production process. Material loss calculated on the wastewater treatment plant is based on the amount of absolutely dry sludge at the entrance to the wastewater treatment plant. The trend of low material loss from the production process continues in 2023. The 0.7% target was met - the material loss in 2023 amounted to 0.49%.

Table 1: Average material loss from production process

	Indicator	Goal	2019	2020	2021	2022	2023
Material loss	% (calculated per gross production)	0.7	0.87	0.81	0.79	0.49	0.49

The second important natural resource is groundwater. Our papermill has four groundwater pumping wells, and two wells being used as observation bore holes.

Well water is used in paper production and for cooling purposes. The consumption of well water depends on the production programme on the paper machine and the operating time of the Bosch and Wagner boilers, which use different amounts of cooling water for their operation. Table 2 shows the amount of well water pumped for paper and steam/power production. We have two boilers at the papermill - the Bosch boiler produces only steam, whereas the Wagner

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boiler produces steam and uses cogeneration to provide electricity. Water used for cooling purposes by the Bosch steam boiler is treated as waste process water in the production process, whereas in cogeneration and electricity production, cooling water is treated as process water in thermal power plants.

For optimum consumption of well water in the production process, we established an efficient water management approach that allows us to track the consumption of fresh water by paper grade and by period (day, month, year). That way, data on the daily amounts of fresh water, type of paper and water quality within the water loop allows us to adjust the amount of fresh water as needed.

Because of our production programme involving speciality papers, and due to the large number of production programme changes, Papermill Goričane is categorised as a speciality paper mill with the BAT-defined maximum specific water consumption of 20 m³/ton of net production. Table 2 shows that the specific consumption of water in paper production ranges between 16 and 17 m³/net production.

The third natural resource is natural gas for process steam/electricity production. The consumption of natural gas depends on the production programme and on whether we buy electricity on the market or produce it ourselves through cogeneration. The specific consumption of electricity and heat in Table 2 shows that in 2023, we continue to display a high level of production process energy efficiency.

Table 2: Consumption of energy products

	Indicator	OVD/ BAT	2019	2020	2021	2022	2023
Water supply and pumping	Water pumped from own reservoir (wells)		1982	1,606	2,033	1,938	2,033
	1000 m3						
Water consumption	Fresh water (cooling in energy sector)		506 (cooling as thermal power plant)	0 (cooling as thermal power plant)	565 (cooling as thermal power plant)	0 (cooling as thermal power plant)	0 (cooling as thermal power plant)
	1000 m3		1,429 (cooling as technological purposes)	1,562 (cooling as technological purposes)	1,461 (cooling as technological purposes)	1,932 (cooling as technological purposes)	2,027 (cooling as technological purposes)
	Fresh water (technological purpose paper production)		1,278	1,255	1,417	1,325	1,347
	1000 m3						
	Specific consumption of process water	15 (BAT 20)	16.2	15.4	17.3	16.6	16.9
	m3/ton net						
Energy consumption	Natural gas 1000 Sm3		11,386	10,632	12,169	10,292	10,558
	Electricity purchased MWh		48,820	52,628	48,234	50,769	51,404

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	Net consumption of electricity MWh/ton	0.7 to 0.9	0.671	0.646	0.652	0.637	0.644
	Net consumption of thermal energy GJ/ton	7 to 8	3.525	3.686	3.696	3.727	3.753

Emissions

AIR

Emissions to air are generated during steam production and during paper drying and cutting. The monitoring of emissions to air is stipulated by the environmental permit and has to be conducted by an accredited external institution every third year for boiler devices and every fifth year for dust collectors. We have two medium-sized combustion plants with separate emissions to air - the Bosch steam boiler (metal chimney) and the Wagner steam boiler with electricity cogeneration (concrete chimney). The steam boilers never operate at the same time. The Bosch boiler is the main one, whereas the Wagner boiler serves as a spare in case of the main boiler's shutdown. The Bosch steam boiler is a newer combustion plant that needs to meet the required target values of below 110 mg NO_x/m³ of air.

Monitoring of total dust emissions to air was completed in 2023, confirming our compliance with the legislative targets. No other additional monitoring is needed - only the Bosch boiler was in operation, which is scheduled for a monitoring of emissions to air in 2024.

Table 3: Emissions to air

	Indicator	Environmental permit	2019	2020	2021	2022	2023
Emissions to air (Bosch boiler)	NO _x mg/m ³	110	68 *	68 *	65 **	65 **	65 **
All emissions	Dust mg/m ³	150	8 *	8 *	8 *	8 *	3 ***

* monitoring 2018

** monitoring 2021

*** monitoring 2023

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WATER

At Goričane, the industrial wastewater is treated on our own industrial wastewater treatment plant. Industrial wastewater treatment is based on the process of chemical-mechanical wastewater treatment (primary level) and biological treatment (secondary level). The control of industrial wastewater is conducted with continuous measurements and monitoring done by an accredited external institution, which as per environmental permit has to be carried out 12 times a year.

Table 4 shows the quality parameters of monitoring performed by an accredited external institution. The monitorings completed in 2023 confirm that the discharges into the water loop do not exceed target values, and we are therefore in compliance with the environmental permit.

Table 4: Emissions to water

Emissions to water	Indicator	Environmental permit (targets after 1. 1. 2013)	2019	2020	2021	2022	2023
Suspended solids	mg/l		12.5	8.5	7.5	5.6	8.15
	kg/t	0.4	0.17	0.11	0.12	0.09	0.11
COD	mg/l		76.7	60.5	43.3	44	57
	kg/t	4**	1.04	0.79	0.70	0.70	0.78
BOD5	mg/l	25**	13.1	8.2	6.3	6.6	6.8
	kg/t	0.5	0.18	0.12	0.10	0.11	0.09
N tot	mg/l		4.7	3.9	3.03	2.85	2.72
	kg/t	0.2	0.06	0.054	0.05	0.04	0.04
P tot	mg/l		0.34	0.11	0.245	0.254	0.28
	kg/t	0.01	0.005	0.0015	0.0039	0.0042	0.0037
AOX	mg/l		0.13	0.09	0.07	0.11	0.10

***target is set for production with more than one programme change per day

Noise

In accordance with the environmental permit, noise monitoring is conducted every third year by an accredited external institution. No additional noise measurements were scheduled in 2023 because monitoring was done in 2022. However, due to one measuring point exceeding the target value, the monitoring was repeated in 2023 after the silencer had been fixed. The repeated monitoring showed that the noise parameters and the conical levels of noise remain below the target values, and that the company is therefore not causing any excessive noise pollution in this area.

The next monitoring is scheduled for 2025.

Waste

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Our company has an established plan of waste management, which was adjusted in 2022 to comply with the Decree on Waste (OG RS, no. 77/22). Each item of waste has its own designated source, collection point and collector. Waste from production is handed over to authorised collectors who have the required permits for waste collection, transport and processing. To make sure waste is separated at its source, smaller containers labelled with the identification number of the waste are located anywhere where waste is generated. Our employees are regularly disposing of waste from these containers by taking them to waste disposal units and designated storages. The waste disposal units include containers and boxes that are properly labelled with the name and the classification number of each specific type of waste. All the waste is being tracked on a monthly basis and we make sure that regular orders are being submitted for the waste to be collected and taken away by authorised collectors.

Our products, sent to the Slovenian market, have a well-established system of waste management, which has been contractually taken care of by Dinos d.o.o. in 2023.

In the last several years, we took some major steps towards reducing the accumulation of paper sludge, especially by investing in a new method of sludge extraction, which increases sludge concentration. Furthermore, by maintaining the disc filter well, we improved the water loop treatment on the paper machine, which resulted in a smaller index of material loss.

Table 5: Waste generated on the premises of Goričane, d.d.

	Indicator	Waste management plan	2019	2020	2021	2022	2023
Paper sludge	ton	1,600	2,058	1,934	1,894	753	750
Municipal waste	ton	50	30	32.5	44.5	37.2	37.8
Paper packaging	ton	1000	702	982	997	1,033	942
Metal packaging	ton	140	134	141	139	135	115
Plastic packaging	ton	15	19.5	14.8	12.8	17.1	15.9
Composite packaging	ton			18.8	15.9	57	28
Wood packaging	ton	60	37	67	58	55	66

Hazardous substance management

In hazardous substance management, our well-kept and regularly maintained storage tanks and pumpings enable us to retain a low-risk rate. We have an established plan of hazardous chemicals management, outlining all the activities that are necessary in order to make sure our operations are compliant with the legislation. Our employees are being regularly trained for

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hazardous substance management and the course of conduct in cases of accidental spillage of hazardous substances.

As part of obtaining the environmental permit, another assessment of applicable hazardous substances was completed in 2023, and we updated the list of hazardous substances and hazardous substances in question because we need it in order to adapt the initial report.

Exceptional events

In 2023, there were no exceptional events with a negative impact on the environment.

Environmental goals and projects

The company management regularly revises the environmental aspects and potential risks, and implements projects to achieve the environmental goals.

The first measurements of wastewater were completed at the beginning of 2023, and confirmed solid operation of the biological wastewater treatment plant. During the measurements, the values of parameters measured in wastewater on the discharge from the plant were in compliance with the prescribed target values, which proves the efficient operation of the biological wastewater treatment plant.

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