

GORIČANE

# ENVIRONMENTAL REPORT

## INTRODUCTION

In 2021, Papermill Goričane met all the legislative requirements of the environmental permit for waste water, emissions to air and emissions of noise into the environment.

In 2021, the pilot operation of the biological waste water treatment plant continued. Secondary treatment was upgraded with separate treatment of waste water from the biological waste water treatment plant. An investment was made into continuous screw press dewatering of paper and biological sludge. In addition to a higher concentration of dewatered sludge, the continuous method will also enable regular emptying of paper sludge from the primary section in the afternoons and during night-time, as well as on weekends and holidays.

## USE OF NATURAL RESOURCES

Rational consumption of natural resources is measured by the index of material loss from the production process. Material loss calculated on the waste water treatment plant is based on the amount of extracted sludge. Material loss in 2021 is smaller than in 2020 but with the value of 0.79, it remains above the target, which is 0.7.

Average material loss from production process

Indicator	Goal	2017	2018	2019	2020	2021
% (calculation based on gross production)	0.7	0.68	0.61	0.87	0.81	0.79

The consumption of well water for cooling purposes depends on the time of operation of individual boilers, Bosch and Wagner, which require different amounts of cooling water for their operation. Water used for cooling purposes by the Bosch steam boiler is treated as waste process water in the production process, whereas in the case of cogeneration and power generation, cooling water is treated as process water in thermal power plants. In the production process, we open the water loop containing waste cooling water from the Energy sector in order to keep any organic charges of waste process water within set limits.

Due to the opening of the water loop in production, the consumption of fresh water for the technological purpose of paper production in 2021 was on the highest level in the last five years. Consequently, the specific consumption of water per net production also exceeded the BAT value (15 m<sup>3</sup>/ton) for 17 m<sup>3</sup>/ton. We are still very far from the goal of 10 m<sup>3</sup>/ton of net production.

## Consumption of energy products

Indicator		Goal	2017	2018	2019	2020	2021
Consumption of water	Fresh water (wells) 1000 m3		2,163	1,851	1,982	1,606	2,033
	Fresh water (cooling in the power station) 1000 m3		875* 237**	552* 1,299**	506* 1,429*	0* 1,562**	565* 1,461**
	Fresh water (technological purpose paper production) 1000 m3		1,051	1,127	1,278	1,255	1,417
	Spec. consumption of process water m3/ton net	10 (BAT 15)	12.7	13.5	16.2	15.4	17.3
Energy consumption	Natural gas 1000 Sm3		12,110	11,713	11,386	10,632	12,169
	Electricity purchased MWh		45,768	48,303	48,820	52,628	48,234
	Net consumption of electricity MWh/ton net	0.7 to 0.9	0.624	0.625	0.671	0.646	0.652
	Net consumption of thermal energy GJ/ton	7 to 8	3.74	3.71	3.525	3.686	3.696

\*cooling as thermal power plant

\*\*cooling for technological purposes

The energy efficiency of our production process in 2021 was once again on a high level, resulting in low electricity and heat specific consumption in comparison with the BAT techniques.

## EMISSIONS

### TO AIR

Emissions to air generate during steam production and 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 for steam production, each with its own exhaust to air - the Bosch steam boiler (metal chimney) and the Wagner steam boiler with electricity cogeneration (concrete chimney). With the new Decree on the Emission of Substances Into the Atmosphere from Medium-sized Combustion Plants, Gas Turbines and Stationary Engines (OG RS 17/18), a target Nox value of 200 mg/m<sup>3</sup> applies to any device older than 27 years, and monitoring has to be performed once a year.

In 2021, monitoring was completed on both Bosch boilers and confirmed that the legislative requirements are being fulfilled. NOx emissions on the Bosch boiler amounted to 65 mg/m<sup>3</sup> on average (target value 110) and 169 mg/m<sup>3</sup> on the Wagner boiler (target value 200).

## Emissions to air

Indicator		Environmental permit	2017	2018	2019	2020	2021
Emissions to air (Bosch boiler)	NOx mg/m3	110	72*	68***	68***	68***	65****
Emissions to air (Wagner boiler)	NOx mg/m3	200	163**	156***	156***	Out of operation	169****
All emissions	Dust mg/m3	150	11*	8***	8***	8***	8***

\*first measurements of emissions to air on the Bosch steam boiler

\*\*monitoring 2016

\*\*\*monitoring 2018

\*\*\*\*monitoring 2021

## TO WATER

Before being discharged to the water course, process waste water is treated on the mechanical-chemical and biological waste water treatment plant. The 2021 monitoring shows compliance with the environmental permit requirements.

### Emissions of substances to water

Emissions to water	Indicator	Environmental permit (target values after 1.1.2013)	2017	2018	2019	2020	2021
Suspended solids	mg/l		6.7	9.8	12.5	8.5	7.5
	kg/t	0.4	0.1	0.12	0.17	0.11	0.12
COD	mg/l		76.3	65.4	76.7	60.5	43.3
	kg/t	4**	0.98	0.81	1.04	0.79	0.70
BOD5	mg/l	25**	12	9.3	13.1	8.2	6.3
	kg/t	0.5	0.15	0.12	0.18	0.12	0.10
N tot	mg/l		4.0	3.8	4.7	3.9	3.03
	kg/t	0.2	0.05	0.05	0.06	0.054	0.05
P tot	mg/l		0.09	0.09	0.34	0.11	0.245
	kg/t	0.01	0.001	0.001	0.005	0.0015	0.0039
AOX	mg/l		0.12	0.11	0.13	0.09	0.07
	kg/t	0.005	0.0015	0.0014	0.0017	0.0013	0.0011

\*\*the limit is defined for production with more than one production programme change a day

## Noise

In accordance with the environmental permit, noise monitoring is conducted every third year by an accredited external institution. At the end of 2019, the level of noise was measured on three locations in the vicinity of the papermill. It was below the maximum permitted limit for daytime and evening time, whereas the measurements for the night-time were within the legislative requirements in two measurement spots, and exceeded the maximum permitted value (which is 48 dB) by 3 dB in the third one.

To eliminate the non-compliance, we ordered new silencers, which replaced the old ones in spring 2020. A repeated monitoring confirmed that the non-compliances are now removed. The next measurement of noise during night-time was below the legislative restriction of 48 dB.

The next monitoring of noise emissions is scheduled for 2022.

## Waste

Papermill Goričane has a well-established system of separating waste at its source - we have smaller containers for separate types of waste being disposed of by our employees on a daily basis. There are several waste disposal units available with separate containers designated for different types of waste. In 2021, waste packaging management was contractually arranged with company Dinos.

Waste collected on the premises of Goričane, d.d.

	Indicator	Waste management plan	2017	2018	2019	2020	2021
Paper sludge	tons	1,600	1,668	1,494	2,058	1,934	1,894
Municipal waste	tons	35	31	34	30	32.5	44.5
Paper packaging	tons	600	500	579	702	982	997
Metal packaging	tons	130	120	138	134	141	139
Plastic packaging	tons	40	23	20.4	19.5	14.8	12.8
Composite packaging	tons					18.8	15.9
Wood packaging	tons	50	37	43.8	37	67	58

## 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 for our operations to comply with the legislation. Our employees are being regularly trained for hazardous substance management and the course of conduct in cases of accidental spillage of hazardous substance.

In 2017, 2018 and 2020, an authorised institution inspected the storage facilities containing hazardous chemicals. The certificates issued to confirm the legislative compliance of storage facilities operation are included in the report on inspecting the technical measures for preventing soil and groundwater pollution.

## GORIČANE

### Exceptional events

In 2021, we received complaints from the local residents about an increased level of noise, which was caused by steam exhausts resulting from a transformer failure in the Energy sector.

### Environmental goals and projects

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