

# Environmental Report

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# Introduction

In 2020, Papermill Goričane met all the legislative requirements of the environmental permit for waste water and emissions to air concerning emissions to the environment. The monitoring of noise emissions to the environment has revealed a non-compliance at one of the measuring points in night-time, which immediately triggered the procedures for purchasing new noise silencers. The repeated noise measurements completed in 2020 confirmed that the remediation was successful since the level of noise remained within the legislative requirements during the day, in the evening and in night time.

In 2020, we performed a trial operation of the biological waste water treatment plant. A separate treatment of waste water from the biological treatment plant has proved to be successful and necessary. A temporary reconstruction of the existing mixing basins in the small settling tank will therefore be completed in order to secure continuous sludge dewatering, which will be achieved by investing in a new dewatering plant. At the moment, we are performing pilot trials of screw press dewatering which is expected to increase the dryness of sludge from the current 25% to 50%.

In 2018, Papermill Goričane submitted the documentation for the change of the environmental permit as required by the Slovenian Environment Agency. Because we operate an IED plant which can cause large-scale environmental pollution, we were called upon to update our environmental permit in compliance with the new requirements of the IED Directive. All the requirements set during the inspections have been fulfilled, and we are now waiting for the response of the Slovenian Environment Agency regarding the change of our environmental permit.

# Use of natural resources

A 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. In 2020, the material losses remain increased - their levels are above the target value of 0.81 (the target is 0.7).

## Average material loss from production process

% (calculation based on gross production)

Goal	2016	2017	2018	2019	2020
0,7	0.75	0.68	0.61	0.87	0.81

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.

In 2020, the consumption of fresh well water was slightly higher than in the previous years due to the opening of the water loop in production. The specific consumption of water per net production thus amounted to 15.4 m<sup>3</sup>/ton and exceeded the BAT value (15 m<sup>3</sup>/ton) which means that we are still very far from the goal of 10 m<sup>3</sup>/ton of net production. Since we started the trial operation of the biological wastewater treatment plan in 2020, it will take us another year to optimise the process water consumption to the extent where we no longer have to open the water loop in order to meet the regulatory restrictions for BOD5.

The energy efficiency of our production process in 2020 was once again on a high level, resulting in low electricity and heat specific consumption in comparison with the BAT techniques.

	Indicator	Goal	2016	2017	2018	2019	2020
Water consumption	Fresh water (water wells) 1000m <sup>3</sup>		2,463	2,163	1,851	1,982	1,606
	Fresh water (cooling in the power station) 1000 m <sup>3</sup>		1.279*	875*	552*	506*	0*
			19**	237**	1,299**	1,429**	1,562**
	Fresh water (technological purpose, paper production) 1000 m <sup>3</sup>		1,164	1,051	1,127	1,278	1,255
	Spec. consumption of process water m <sup>3</sup> /tono neto	10 (BAT 15)	14.3	12.7	13.5	16.2	15.4
Energy consumption	Natural gas 1000 Sm <sup>3</sup>		12,510	12,110	11,713	11,386	10,632
	Electricity purchased (in MWh)		44,143	45,768	48,303	48,820	52,628
	Surplus of emission coupons		2,259	3,009	2,774	2,890	3,802
	Net consumption of electricity Net MWh/ton	0.7 to 0.9	0.627	0.624	0.625	0.671	0.646
	Net consumption of thermal energy (GJ/ton)	7 to 8	3.76	3.74	3.71	3.525	3.686

\*cooling as thermal power plant \*\*cooling as technological purposes

# Emissions

## To air

Emissions to air are caused during steam production as well as 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. By investing in the new Bosch steam boiler, we managed to significantly reduce emissions of NO<sub>x</sub> to air; the guaranteed value is now below 100 mg NO<sub>x</sub>/m<sup>3</sup> of air. The first measurements taken in 2015 confirmed an improved state of emissions (72 mg NO<sub>x</sub>/m<sup>3</sup>), which has been reaffirmed by the 2018 monitoring (68 mg NO<sub>x</sub>/m<sup>3</sup>).

Because - considering the market prices of electricity and gas - steam is also generated on the Wagner steam boiler, the exhaust of which is directed into a concrete chimney, a reconstruction of the concrete chimney and a setup of a new measuring site were both implemented in 2017. 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 NO<sub>x</sub> value of 200 mg/m<sup>3</sup> applies to any device older than 27 years. The monitoring, performed in 2018 for the Wagner boiler, is thus in full compliance with the legislative requirements regarding NO<sub>x</sub> as well. As per this new decree, the monitoring of emissions to air for the older boiler will be conducted annually.

### Emissions to air

	Indicator	Environmental permit	2016	2017	2018	2019	2020
Emissions to air (Bosch boiler)	NO <sub>x</sub> mg/m <sup>3</sup>	150	72***	72***	68*****	68*****	68*****
Emissions to air (Wagner boiler)	NO <sub>x</sub> mg/m <sup>3</sup>	200	163**	163**	156*****	156*****	Out of operation
All emissions	NO <sub>x</sub> mg/m <sup>3</sup>	150	11**	11**	156*****	8*****	8*****

\*\* monitoring 2012

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

\*\*\*\* monitoring 2016

\*\*\*\*\* monitoring 2018

## To water

Before being discharged to the water course, process waste water is treated on the mechanical chemical waste water treatment plant. Biological treatment was launched with a trial operation in 2020. Due to the non-optimal operation of the biological waste water treatment plant, which is currently going through a trial run, we still have to open the water loop in order to meet the requirements of the environmental permit, which results in the specific consumption of water amounting to 15 m<sup>3</sup>/ton of paper on average. The 2020 monitoring establishes our compliance with the environmental permit requirements.

## Noise

In accordance with the environmental permit, noise monitoring is conducted every third year by an accredited external institution. In 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 on 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.

## Waste

Our company 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 waste disposal units

available with separate containers for different types of waste. In 2020, our waste packaging management was contractually arranged with the Surovina company.

### Emissions of substances to water

Emissions to water	Indicator	Environmental permit	2016	2017	2018	2019	2020
		(limits after 1.1.2013)					
Suspended solids	mg/l		8.2	6.7	9.8	12.5	8.5
	kg/t	0.4	0.10	0.10	0.12	0.17	0.11
COD	mg/l		95.2	76.3	65.4	76.7	60.5
	kg/t	4**	1.23	0.98	0.81	1.04	0.79
BOD5	mg/l	25**	17	12	9.3	13.1	8.2
	kg/t	0.5	0.22	0.15	0.12	0.18	0.12
N tot	mg/l		4.3	4.0	3.8	4.7	3.9
	kg/t	0.2	0.06	0.05	0.05	0.06	0.054
P tot	mg/l		0.07	0.09	0.09	0.34	0.11
	kg/t	0.01	0.001	0.001	0.001	0.005	0.0015
AOX	mg/l		0.11	0.12	0.11	0.13	0.09
	kg/t	0.005	0.0013	0.0015	0.0014	0.0017	0.0013

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

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

	Indicator	Waste management plan	2016	2017	2018	2019	2020
Paper sludge	tons	1,600	1,809	1,769	1,494	2,058	2,969
Municipal waste	tons	35	30	31	34	30	32,5
Paper packaging	tons	600	397	500	579	702	982
Metal packaging	tons	130	151	120	138	134	141
Plastic packaging	tons	40	19	23	20.4	19.5	14.8
Wood packaging	tons	50	53	37	43.8	37	67

# Hazardous substance management

In hazardous substance management, our well-kept and regularly maintained storage tanks and pumpings enabled us to retain a low risk rate. We have a well-established plan of hazardous chemicals management outlining all activities that are necessary in order to harmonise our operations 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 conducted an inspection of storage facilities containing hazardous chemicals. The certificates issued to confirm legislative compliance of storage facilities operation are included in the report on inspecting the technical measures for preventing soil and groundwater pollution.

# Exceptional events

No exceptional events that would affect the environment were recorded in 2020.

# Environmental goals and projects

- Reducing BOD5 of the process waste water at specific water consumption below 10 m<sup>3</sup>/ton.

In 2020, we launched a pilot operation of the biological waste water treatment plant. Since we were unable to reduce the specific consumption of process waste water in production, we managed to treat only 50% of the waste water. The issues with the biofilter cleaning resulted in a non-optimal effect of biosludge removal. The trial operation will thus continue in 2021.

- Maintaining noise emissions below the level required by legislation.

To reduce noise emissions, new noise silencers by the fans and above the paper machine were installed in 2017. Noise monitoring, performed in 2019, revealed excessive noise emission values in one of the measuring spots during night-time. We ordered new silencers which were installed in the spring of 2020. The repeated noise measurements confirmed that our efforts were successful since the emissions remained within the legislative requirements.

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