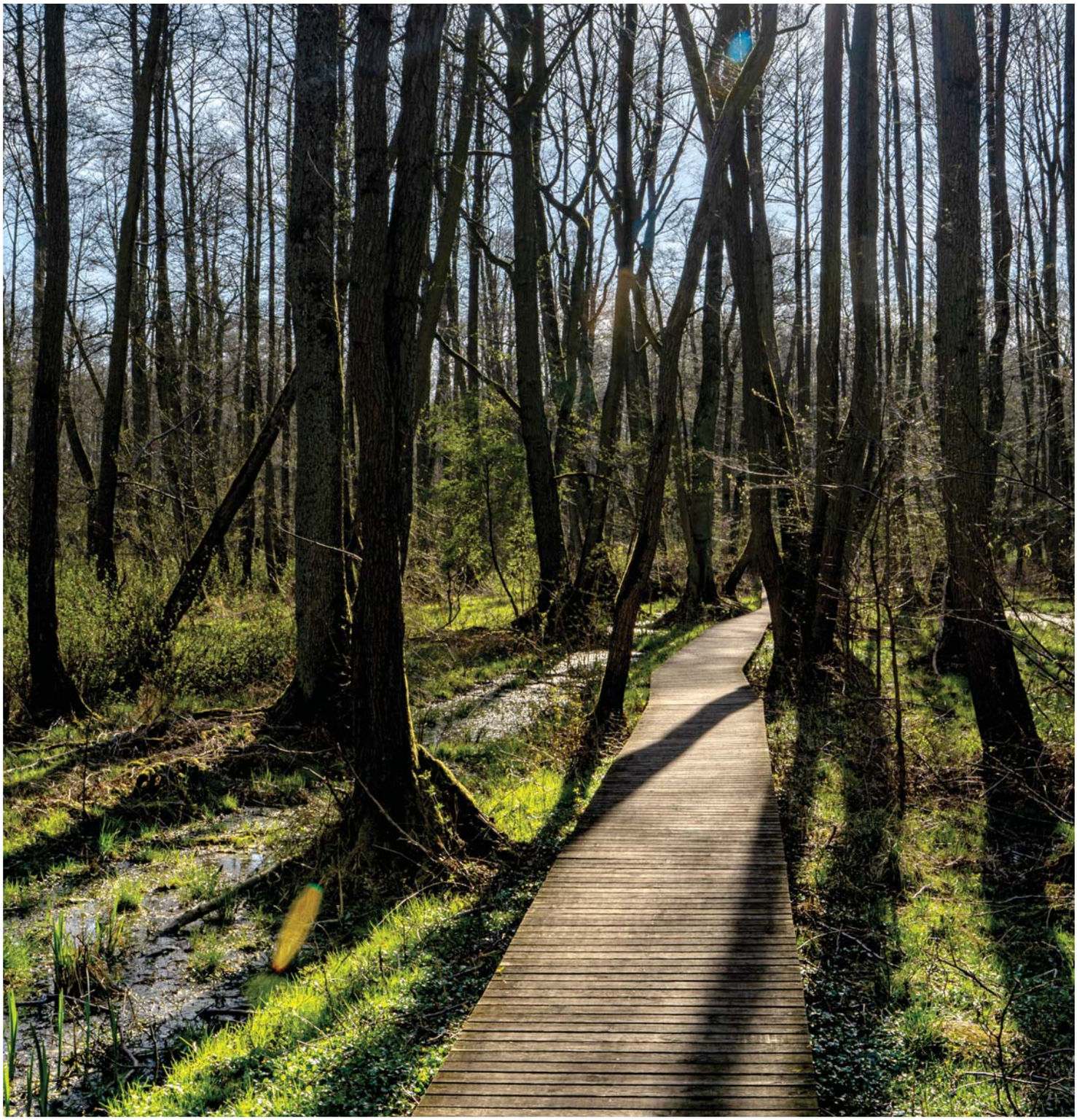
Arctic Paper Kostrzyn S.A.
Environmental Report 2024

EMAS 2024



ARCTIC PAPER

Environmental Report 2024

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Arctic Paper Kostrzyn SA

Arctic Paper Kostrzyn SA (APK SA) is the largest producer of offset papers in Poland and the second-largest producer of graphic papers in the country. Since 1993, the company has been part of the Swedish paper group **Arctic Paper.**

The Kostrzyn mill primarily manufactures **Amber** brand papers – high-quality, uncoated, woodfree papers produced in a modern and safe working environment, with great care for the natural surroundings. Our product range also includes bleached kraft papers dedicated to the packaging market.

Arctic Paper Kostrzyn SA is certified under the **ISO 9001** quality management system, the **FSSC 22000** food safety system for packaging materials, and the **ISO 45001** occupational health and safety management system. It has implemented an environmental management system in accordance with **ISO 14001** and publishes a publicly available **EMAS** report on its environmental impacts.

Arctic Paper | Europe

Sales Office Paper Mill Head Office

Arctic Paper SA

Arctic Paper SA is one of Europe's leading suppliers of highquality book paper and graphic fine paper.

The Group produces high-quality coated, uncoated woodfree, and uncoated wood-containing paper. Its product portfolio includes the brands Amber, Arctic, G, and Munken. Production takes place at three European paper mills: Arctic Paper Munkedals and Arctic Paper Grycksbo in Sweden, and Arctic Paper Kostrzyn in Poland. The total production capacity of these three mills is approximately 695,000 tonnes of paper per year. The company employs about 1,584 people and operates 13 sales offices across Europe. Our head office is located in Poznań, Poland, with a branch office in Gothenburg, Sweden.

Arctic Paper S.A. has been listed on the Warsaw Stock Exchange since October 2009 and on NASDAQ OMX Stockholm since December 2012.

Printed on Amber Graphic 130 g/m²

Preface

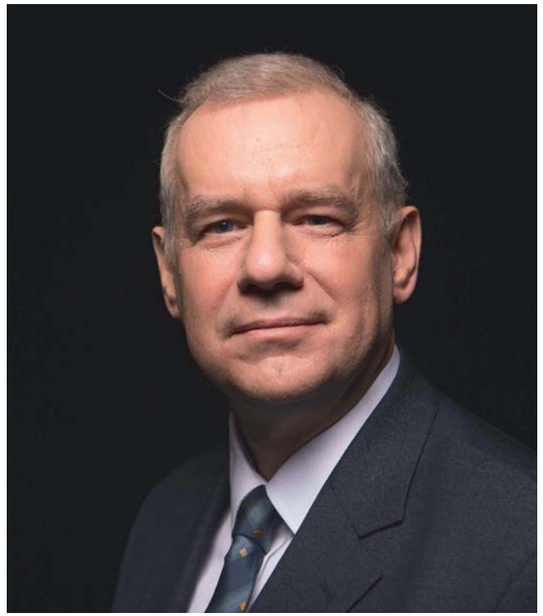
Dear Readers,
We are pleased to present the latest EMAS report from Arctic Paper Kostrzyn S.A., highlighting our environmental management efforts and reflecting our continued commitment to responsible business practices in 2024. As we navigate a rapidly evolving business landscape, maintaining transparency in our environmental impact reduction efforts remains crucial.

As part of this commitment, we are taking significant steps to improve energy efficiency, optimise water usage, and increase the share of renewable energy in our production processes. Both our Kostrzyn mill and the wider Arctic Paper Group are working toward a transition to fully fossil-free energy by 2035, a goal that will lead to a substantial reduction in greenhouse gas emissions. To support this, we are actively investing in renewable energy sources. The energy segment being developed by Arctic Paper is becoming an increasingly important source of future revenue, and a key driver of our path toward climate neutrality.

In the second half of 2024, our 17 MW solar power plant in Kostrzyn nad Odrą was brought online. This investment will generate an additional 18 GWh of renewable energy annually to help power our mill. We also acquired a 4 MW photovoltaic farm in Garwolin, Poland in 2024, bringing the Group's installed capacity to over 30 MW by summer 2025. In 2025, we will continue expanding our green energy initiatives, including launching an additional 9 MW solar farm in Kostrzyn in the first quarter, and pursuing the next stage of renewable energy development later in the year.

Guided by circular economy principles, we are committed to providing sustainable wood fibre-based products. We also recognise our duty to protect biodiversity – particularly in protected areas and forests – by carefully selecting and collaborating with responsible suppliers.

Partnerships play a vital role in enhancing our positive environmental impact. At Arctic Paper Kostrzyn S.A., we follow the Group's Code of Conduct, which strengthens ethical practices and ensures alignment with our sustainability goals.



Finally, I would like to express my sincere thanks to all our employees for their outstanding dedication and hard work throughout the year in achieving strong environmental performance.

With best regards,
Michał Jarczyński
President of the Management Board
Arctic Paper Kostrzyn SA
Kostrzyn nad Odrą, June 7, 2025

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Facts about Arctic Paper Kostrzyn SA

Product	Amber Graphic
	Amber Preprint
	Amber Volume
	Amber Highway
	Amber Terra
	Munken Kraft
	Munken Kraft HighWhite

Energy	
Gas boilers	169 MW
Back-pressure turbines	18.7 MW
Gas turbines	21.8 MW

Capacity	315,000
Sales	Export 72%, Poland 23%
Employees	446

Paper Machine	**Width**	**Grammage**	**Speed**	**Capacity**
MP1	5.3 m	40-120 g/m²	950 m/min	155,000
MP2	5.3 m	70-170 g/m²	800 m/min	160,000

Sheet Cutters	**Sheet Width**	**Sheet Length**	**Production Capacity**	**Storage Capacity**
6 szt.	30 – 160 cm	32 – 160 cm	180,000 tonnes/year	16,000 tonnes

Certyfikaty

Environmental managemant system ISO 14001:2015	Numer Zatwierdzenia: ISO 14001 – 0052495	2027-04-30
Environmental managemant system EMAS 1221/2009 (with changes)	PL 2.08-001-13	
Chain of Custody according to FSC®	PBN-COC-012351	2026-12-06
Chain of Custody according to PEFC	PBN-PEFC-COC-000022	2027-06-05

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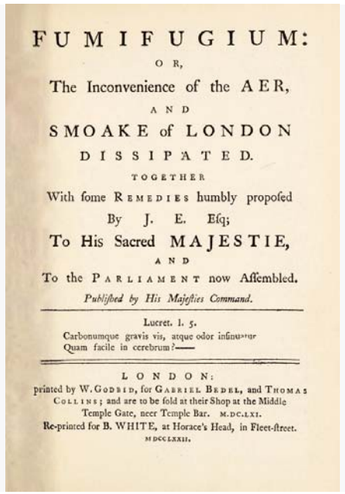
Environmental Management

Awareness

In modern history, the understanding of the interdependence between humans and the environment was marginalized at a very early stage. Natural resources were considered inexhaustible, and human impact was seen as negligible. Attention was focused primarily on problems that had a direct and material effect on human health. To enable a more systemic approach, environmental review methods were developed – laying the foundation for structured environmental management.



FUMIFUGIUM:
OR,
The Inconvenience of the AER,
AND
SMOAKE of LONDON
DISSIPATED.
TOGETHER
With some REMEDIES humbly proposed
By J. E. Esq;
To His Sacred MAJESTIE,
AND
To the PARLIAMENT now Assembled.
Published by His Majesties Command.

Lucret. l. 5.
Carbonumque gravis vis, atque odor insinuatur
Quam facile in cerebrum?——

LONDON:
printed by W. GODBID, for GABRIEL BEDEL, and THOMAS COLLINS; and are to be sold at their Shop at the Middle Temple Gate, neer Temple Bar. M.DC.LXI.
Re-printed for B. WHITE, at Horace's Head, in Fleet-street. MDCCLXXII.

In 1661, John Evelyn published "Fumifugium, or The Inconveniencie of the Aer and Smoak of London Dissipated", a work considered a precursor to modern environmental reviews.

Subject Matter

Environmental management can be defined as the organized acquisition of knowledge about the environment and the gradual reduction of one's negative impact on it. EMAS and ISO 14001 are key documents that set the conditions and serve as pillars of our environmental management systems. They are not only certifications of legal compliance but also instruments that promote continuous improvement through procedures, audits, goals, and action programs.

Arctic Paper as a Pioneer

Today, there are many incentives to reduce environmental impact. With its long-term commitments and well-established systems, Arctic Paper is a group with a clear objective: to minimize its environmental footprint, improve operational efficiency, and foster open dialogue.

Environmental Policy

"With care for the natural environment, we always choose lasting solutions."

The goal of Arctic Paper Kostrzyn is to minimize the negative environmental impact of the company's operations.

Means of Achieving This Goal:
1. Raising employee awareness regarding environmental protection,
2. Maximizing the use of certified raw materials,
3. Optimizing water consumption,
4. Reducing specific energy consumption,
5. Minimizing noise emissions to the environment,
6. Preventing pollution and managing all generated solid waste,
7. Complying with legal environmental protection requirements.

Arctic Paper Kostrzyn S.A. adheres to legal standards and transparently communicates the impact of its activities on the environment.

The environmental policy of Arctic Paper Kostrzyn is known to all employees and available to all interested parties.

Michał Jarczyński
President of the Management Board
Arctic Paper Kostrzyn S.A.

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Paper Production

Pulp Reception

The mill does not produce its own pulp but purchases it in the form of bales from external suppliers. Once delivered to the mill, the pulp bales are stored in the pulp warehouse until they are needed.

The pulp bales are dissolved in internally purified process water and then ground in mills to soften and swell the fibers. Grinding is important for the strength properties of the paper. Various raw materials and additives are added, such as fillers, sizing agents, and starch. The pulp is filtered in several stages to remove foreign particles.

Paper Machine

Headbox and Wire Section

The function of the headbox is to distribute the diluted pulp evenly across the entire width of the wire. In the wire section, dewatering and sheet formation takes place.

Press Section

The partially dewatered sheet then moves into the press section. Here, the paper gains the proper density and surface structure.

Surface Treatment

After drying, both sides of the paper surface are treated in a sizing/coating process. This treatment gives the paper a smoother and more durable surface with better printability. After this process, the surface is dried in infrared dryers and in a second drying section containing steam-heated cylinders.

Machine Calendering and Tambour

The web passes through a calender, which gives it its final surface structure. The finished web is rolled onto a tambour and moved to the winding machine.

Winding Machine

In the winding machine, the large reel is divided into smaller reels in line with the customer's order. The different sizes of reels are combined so that the width of the web is optimally utilised.

Finishing

Paper Cutting Machines

The reels proceed for further conversion. In paper cutting machines, they are cut into sheets in varying formats as requested by the customer. Some of the sheets are packaged in an automatic bale packaging machine.

Pallet Pack

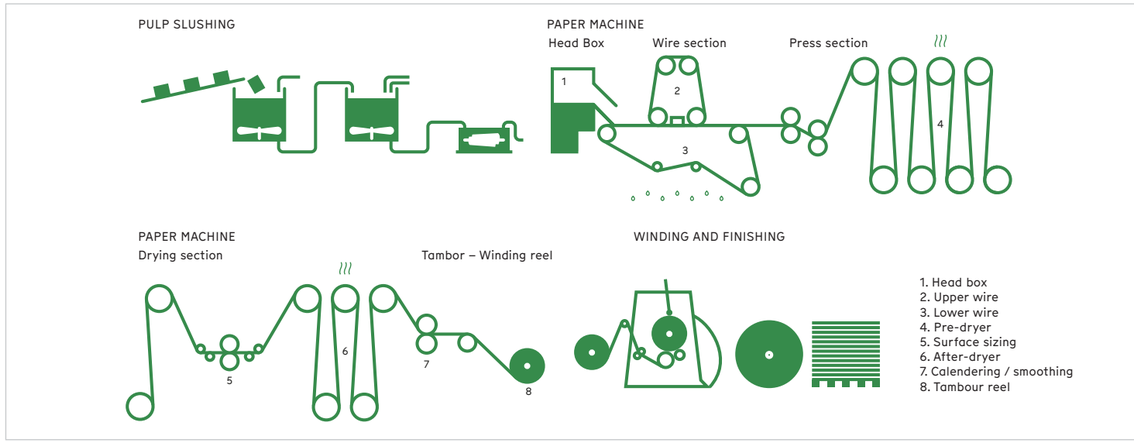
Pallets with sheets are provided with a cardboard top cover and then shrink-wrapped.

Reel Pack

Reels to be delivered directly to the customer are fitted with protective packaging and labelled so that they can be identified.

Storage and Shipping

The finished reels and pallets of sheets are placed in the mill's warehouse for finished goods until they are released from inventory for transportation to corporate warehouse or the customer by road, rail or sea depending on the customer's geographical location.



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Local Processes

Energy Use

1. The primary fuel used for energy production is natural gas from local deposits. Backup fuels include light fuel oil and high-methane natural gas.
2. The parameters of the gas are continuously monitored before combustion.
3. The heat generated is used to produce process steam, which is then used for paper drying.
4. Electricity for paper production is obtained from two generators coupled with gas turbines, two generators connected to steam turbines through steam pressure reduction, and renewable photovoltaic (solar) energy sources.
5. Air emission monitoring is carried out continuously or periodically, in accordance with current reference methodologies.

Wastewater Treatment

1. The first stage of wastewater treatment involves the removal of contaminants generated during paper production (mainly cellulose fibers and filler particles). This is carried out in settling tanks, where the contaminants settle freely at the bottom and are removed, while the pre-treated wastewater flows to the next stage.
2. The second stage occurs in two aerobic bioreactors. These are tanks supplied with air. The prefix "bio" indicates that the dissolved pollutants in the wastewater are broken down by microorganisms.
3. In the third stage, the treated wastewater is separated in a clarifier from the byproducts of bacterial activity and then directed to a flotation chamber, where it undergoes final cleaning using air and chemical agents. The cleaned water is discharged into the Warta River.
4. Separated sludge from the mechanical and biological treatment is mixed and dewatered, and then sent for recycling, such as composting.

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Main and Detailed Environmental Performance Indicators

The following lists the raw materials, auxiliary materials, and energy required to produce 1 tonne of paper in 2024 (2023 and 2022). Additionally, emissions to air and water, as well as the amounts of waste generated by this process, are provided.

Raw materials	2024	2023	2022	
Pulp	741.48	740.79	739.9	kg
Fillers	339.6	344.1	323.3	kg
Chemicals	52.31	54.5	56.6	kg

Water	2024	2023	2022	
Process water	12.54***	15.84***	10.7	m^3

Energy	2024	2023	2022	
Electricity	569.3	614.5	525.5	kWh
Heat energy	7.9	8.4	7.3	GJ
Local natural gas	366	442	345	m^3

Emission to air	2024	2023	2022	
SO_2	0.05	0.06	0.03	kg
NO_2	0.51	0.59	0.46	kg
CO_2	441.6	541.4	418.4	kg

Discharges to water	2024	2023	2022	
Suspension	0.037	0.060	0.067	kg
$ChZT_{Cr}$	0.31	0.38	0.31	kg
BZT_5	0.02	0.03	0.04	kg
Nitrogen (N)	0.071	0.100	0.080	kg
Phosporus (P)	0.004	0.005	0.003	kg

Waste

Recycling			
2024	2023	2022	
15.78	11.60	12.27	kg
28.68**	25.55**	25.23**	

Landfilling/ Neutralization			
2024	2023	2022	
0.32	0.65	0.27	kg

Hazardous waste			
2024	2023	2022	
0.12	0.17	0.08	kg

The above figures refer to the net production values according to BAT for paper and board production.

Compliance with the conditions of the integrated permit	Permissible value according to the integrated permit	Result 2022	Result 2023	Result 2024	Unit
Production (level net)	380,000	298,320	176,156	214,176	tonne/year
Discharges to water					
$ChZT_{Cr}$	1.5	0.31	0.38	0.31	kg/tonne
Suspension	0.35	0.07	0.06	0.04	kg/tonne
Total Nitrogene (N)	0.1	0.08	0.10	0.07	kg/tonne
Total Phosphorus (P)	0.012	0.003	0.005	0.004	kg/tonne
BZT_5	30	3.44	2.29	1.98	mg/l
Discharges to air					
Dust	13.04	1.7	1.2	0.8	tonne/year
SO_2	41.58	11.7	12.1	11.9	tonne/year
NO_2	348	157.8	128.7	125.0	tonne/year
CO_2	nd	144,702	118,825	109,327	tonne/year
Other conditions					
Noise	55 (day) / 45 (night)	do 55/45	do 55/45	do 55/45	dB(A)
Fresh water intake	12,000	9,116	8,292	8,510	m^3 per day
Amount of wastewater	11,000	8,731	7,441	7,335	m^3 per day
Wastewater temperature	35	17-32	16-31	12 – 32	°C
Sludge	7,500	6,313**	4,096**	4,346**	tonne/year

We comply with all legal and other applicable requirements related to the operations of Arctic Paper Kostrzyn S.A. In 2024, no environmental incidents were recorded.

* Free allocation of CO_2 emission allowances for the year 2024; parameter not subject to limit values.

** Indicator [t/year] based on the wet weight of waste.

*** Refers to normal operation of paper production lines.

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Biodiversity

Currently, one of the major environmental problems on Earth is the decreasing area of forests. This phenomenon has serious consequences, the main ones being: disruption of the water cycle in ecosystems and increased soil erosion, loss of livelihoods for local communities, and loss of biodiversity. One of the causes of this situation is the illegal trade in wild fauna and flora.

Since 2007, Arctic Paper Kostrzyn S.A. has primarily used pulp made from certified wood (FSC or PEFC) for its production, which means that:

- The wood does not originate from illegal sources,
- The wood does not come from endangered areas or regions with high conservation value,
- The wood is not derived from genetically modified trees,
- The harvesting of wood does not violate the rights or traditions of indigenous peoples.

Efficiency indicators	Annual share value	2024	2023	2022
Share of pulp suppliers holding FSC® and/or PEFC certification	%	100	100	96*

* supply chain disruptions due to the situation in Ukraine

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Significant Environmental Aspects

The environmental aspects – elements of Arctic Paper Kostrzyn SA's activities, products, or services that impact the environment – were identified based on the process map of the operations within the plant. For each individual process, input data were collected and output data were defined, with particular attention paid to:

- Emission to air
- Discharges to water
- Waste management
- Soil contamination
- Use of natural resources
- Other issues related to the local environment and community

An aspect is considered significant if it receives an evaluation above a defined threshold, based on the following criteria:

- Compliance with legal and regulatory requirements
- Scope of environmental impact
- Probability of exceeding emission limits or standards
- Severity of the environmental impact
- Likelihood of the impact occurring

The following have been recognized as the most significant direct and indirect environmental aspects:

- Pulp consumption (depletion of natural resources)
- Water consumption (depletion of natural resources)
- Gas consumption (depletion of natural resources)
- Discharge of papermaking wastewater (pollution of surface waters and soil)
- Sewage sludge (waste-related pollution)
- Improper waste and packaging management (waste pollution, biological risk from wood pests, contamination of water and soil)
- Consumption of electric and thermal energy (depletion of natural resources)
- Potential leakage of chemicals and oils (contamination of water and soil)
- Emission of dust and gases – CO_2, sulfur oxides, nitrogen oxides, dust, F-gases (air pollution, greenhouse effect)
- Potential gas explosion (air and waste pollution)
- Fire (air and waste pollution)
- Product and service design – implementation and validation (environmental pollution by waste, creation of emergency situations) – preventive/supportive parameter
- Supplier environmental aspect oversight (air, waste, water, and soil pollution, noise) – preventive/supportive parameter

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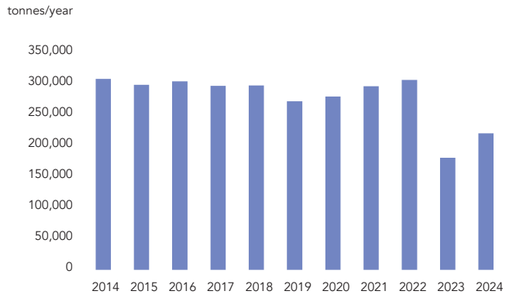
Net Production (Annual Reference Values)

When describing the company's progress in terms of environmental performance, net paper production is an important point of reference. The net production, as shown in the attached trend chart, serves as the basis for calculating operational efficiency in relation to the core environmental indicators. In 2023, due to a significant reduction in the effective operating time of the production line, while maintaining process readiness, there was a deterioration in the unit environmental indicators.

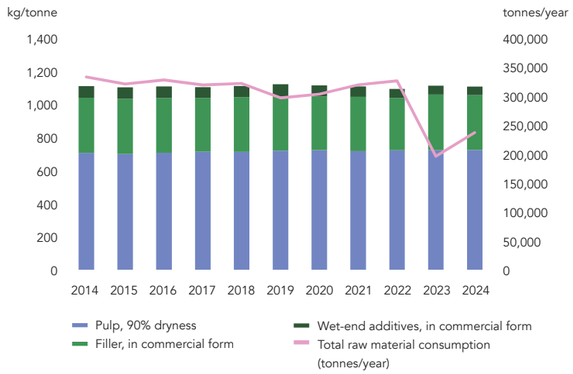


Net paper production – reference values for the calculation of unit environmental performance indicators (years 2022–2024)			
2024	**2023**	**2022**	**Unit**
214,176	176,156	298,320	tonne/year

The data present the net production volume in tonnes for the last three years. These values serve as a reference point for calculating resource consumption efficiency and emissions per unit of production (see page 9). The chart above shows the long-term production trend for the years 2014–2024.

Material

The main raw materials used in paper production include pulp, filler, and auxiliary substances. These materials are delivered to the mill via sea, road, and rail transport. For key unit values, see page 9.



	2024	2023	2022
Total consumption [tonnes/year]	242,747	200,722	334,059
Pulp [tonnes/year]	158,808	130,494	220,718
Filler [tonnes/year]	72,734	60,623	96,453
Wet-end additives [tonnes/year]	11,204	9,605	16,888

The data present the material consumption in tonnes for the last three years. These values serve as a reference point for calculating material use efficiency per unit of net paper production. The chart above shows the long-term trend in material consumption from 2014 to 2024.

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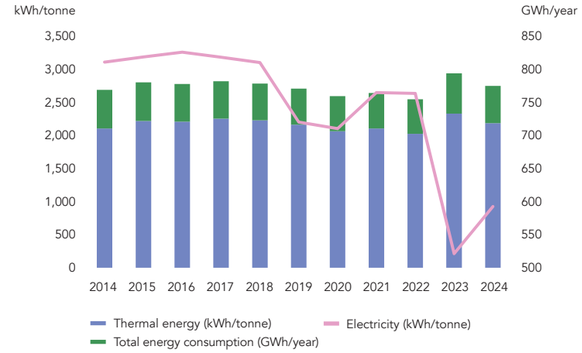
Core Indicators

Energy

The most energy-intensive processes in paper production are steam generation and the operation of paper machine motors, mills, and pumps. Steam is distributed to the drying cylinders, where it is used to dry the paper. The chart shows the total energy consumption as well as the breakdown between electric and thermal energy. For key figures on energy use and main energy carriers, see page 9.

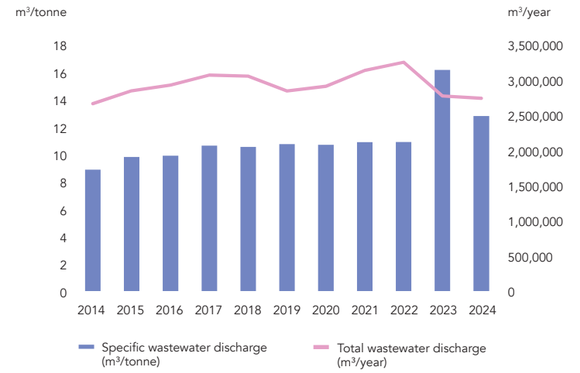


	2024	2023	2022
Total energy consumption [GWh/year]	593	521	766
Including renewable energy consumption [GWh/year]	8	1.2	1.3

The data present the energy consumption values over the past three years. These values serve as a reference point for calculating energy use efficiency per unit of net paper production. The chart above shows the long-term trend in energy consumption from 2014 to 2024.

Water

In the papermaking process, water is used for dispersing pulp into fibrous slurry and for transporting the slurry to the headbox of the paper machine. On the paper machine, during sheet formation, the slurry is dewatered. Most of the water is reused and circulates within the paper mill. Water that is not recirculated is sent to the on-site wastewater treatment plant. Water consumption is measured based on the volume of wastewater discharged from the mill after treatment. For key figures on water consumption and wastewater discharge, see page 9. The higher unit water consumption in 2023, compared to previous years, does not indicate a deterioration in the process, but is rather a result of its specific operational characteristics.



	2024	2023	2022
Process water* [m³/year]	2,684,521	2,716,086	386,672
Surface water consumption [m³/year]	3,114,516	3,026,563	3,327,447
Total water consumption [m³/year]	3,143,730	3,047,874	3,359,633

The data present the water consumption values over the past three years. Water use is measured as the volume of water leaving the factory after passing through the water treatment station. These values serve as a reference point for calculating material use efficiency per unit of net paper production. The chart above shows the long-term trend in water consumption from 2014 to 2024.
* Water consumption is measured as the wastewater volume discharged from the facility after treatment.

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Core Indicators

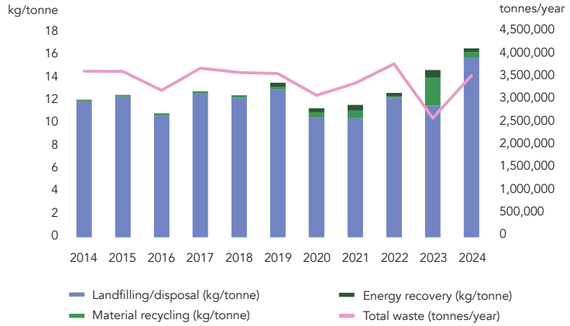
Land Use in Relation to Biodiversity

The data present the types of land use associated with the mill's operations over the past three years. It includes the total site area, impermeable surfaces, and areas remaining in a natural or semi-natural state. These indicators serve as a reference point for assessing the mill's impact on biodiversity and changes in land use structure. The goal of this monitoring is to minimize transformation of ecologically valuable areas and to support the preservation of green infrastructure.

Land use in relation to biodiversity, expressed in area units [m²]:			
	2024	**2023**	**2022**
Total land use	1,066,237	1,066,237	106,237
Total impermeable surfaces	172,494	169,577	169,577
Total nature-oriented area outside the site	799,183	798,481	799,183

Waste

The chart illustrates the amount of mill-generated waste in relation to production. Wherever possible, waste is recycled. Waste that cannot be recycled is either used for energy recovery or landfilled/sent to a processing facility for disposal. For key figures on waste, see page 9.



	2024	**2023**	**2022**
Annual amount of waste generated [t/year]	3,559	2,623	3,814
Including annual amount of hazardous waste generated [t/year]	0.12	0.17	0.08

The data present the amount of waste generated over the past three years. These values serve as a reference point for calculating material use efficiency per unit of net paper production. The chart above shows the long-term trend in waste generation, including the dry mass of sewage sludge, for the years 2014–2024.

Printed on Amber Graphic 130 g/m²

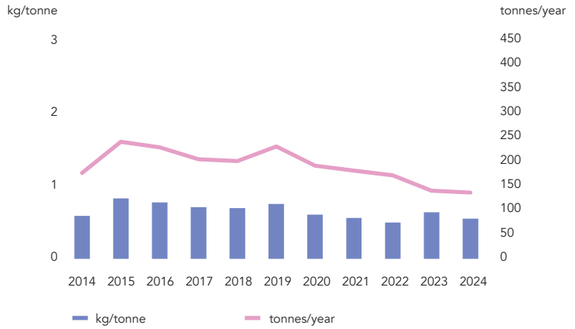
Core Indicators – Emission to Air

Sulphur Dioxide (SO_2)

Sulphur dioxide is generated during the combustion of fuels containing sulphur, such as oil and coal. SO_2 contributes to acidification of soil and water. (Fluctuations in the values result from the measurement methodology. All values comply with BAT requirements). For key figures related to air emissions, see page 9.

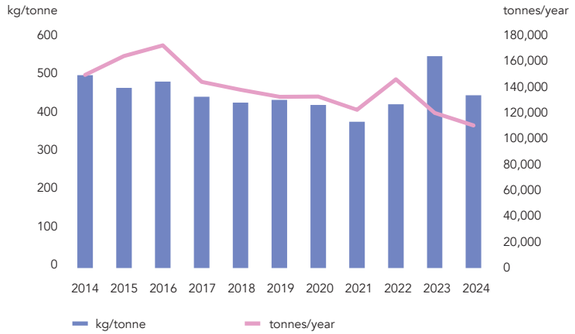
Nitrogen Oxides (NO_x)

A collective term for nitrogen oxides produced during combustion processes, which may contribute to acidification of soil and water. For key figures related to air emissions, see page 9.



Carbon Dioxide (CO_2) from Fossil Fuels

Carbon dioxide is produced during the complete combustion of carbon compounds in an oxygen-rich atmosphere. When fossil fuels are burned, additional CO_2 is released into the atmosphere, since the carbon had previously been stored outside of the natural cycle for a very long time. The increasing concentration of CO_2 in the atmosphere is considered one of the main contributors to global warming. In the long term, the use of renewable energy sources, such as biofuels and hydropower, does not increase atmospheric CO_2 levels. For key figures related to air emissions, see page 9. The higher unit CO_2 emission in 2023, compared to the previous year, does not reflect a deterioration in process performance, but is rather a result of the nature of the operation.



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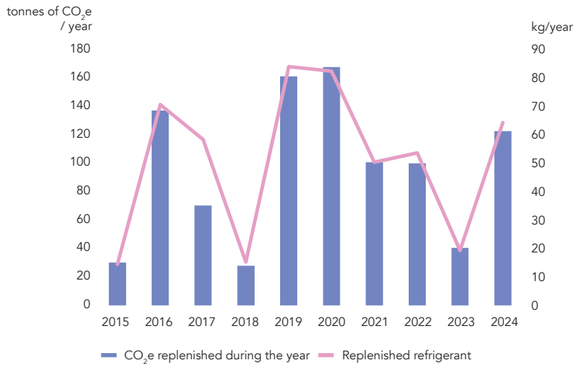
Core Indicators – Emission to Air

Fluorinated Greenhouse Gas (F-gas) Emissions from Refrigeration Systems

Refrigeration systems use so-called F-gases – fluorinated greenhouse gases, including compounds from the HFC (hydrofluorocarbon) group. While these gases do not deplete the ozone layer, they have a significant impact on the greenhouse effect.

To assess their impact on the climate, F-gas emissions are converted into carbon dioxide equivalents (CO_2e).
The Global Warming Potential (GWP) factor expresses how much more strongly a greenhouse gas affects the climate compared to 1 kg of CO_2. For CO_2, the GWP is 1, while for F-gases it can reach several thousand.

The CO_2 equivalent is calculated by multiplying the mass of the emitted gas by its GWP factor.
Presenting emissions in this way enables easy comparison of different substances in terms of their climate impact and allows the inclusion of refrigerant emissions in an organization's total carbon footprint.



	2024	2023	2022
Replenished refrigerant quantity [kg/year]	32	19	52
CO_2e emissions [t]	118	39	96

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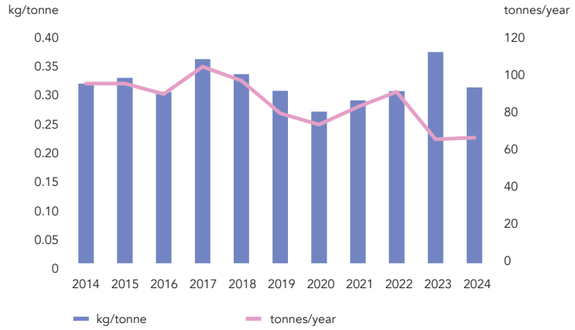
Core Indicators – Emission to Water

COD_{Cr}

Chemical Oxygen Demand (COD) – a measure of the amount of organic compounds in water that consume oxygen during decomposition. For key parameters related to wastewater discharge, see page 9. The higher values in 2023 compared to the previous year do not indicate a deterioration of the process, but are rather due to the nature of the operation.



2024	2023	2022	Unit
67.1	66.3	91.5	tonnes/year

The data present the amount of organic compounds in wastewater over the past three years. These values serve as a reference point for calculating efficiency per unit of net paper production. The chart above shows the long-term trend for the years 2014–2024.

BOD_5

Biochemical Oxygen Demand (BOD_5) – a measure of the amount of oxygen consumed by microorganisms during the breakdown of organic substances in water over a period of five days.

2024	2023	2022	Unit
5.32	5.93	10.99	tonnes/year

The data present the amount of organic compounds in wastewater over the past three years. These values serve as a reference point for calculating efficiency per unit of net paper production. The chart above shows the long-term trend from 2014 to 2024.

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Suspended Solids (SS)

Suspended solids refer to fiber fragments and other solid substances (e.g. filler) present in wastewater, which cause the water to become turbid. These suspended particles block light from penetrating the water, which reduces aquatic plant growth.

2024	2023	2022	Unit
7.94	10.57	20.12	tonnes/year

The data present the wastewater quantities over the past three years. These values serve as a reference point for calculating efficiency per unit of net paper production. The chart above shows the long-term trend from 2014 to 2024.

Nitrogen (N)

Nitrogen is an element found in large quantities in the atmosphere. Elevated levels of nitrogen compounds, along with phosphorus compounds and organic matter, can lead to increased biological activity in water, which in turn may cause the overgrowth of watercourses.

2024	2023	2022	Unit
15,20	17.62	23.77	tonnes/year

The data present the quantities in wastewater over the past three years. These values serve as a reference point for calculating efficiency per unit of net paper production. The chart above shows the long-term trend from 2014 to 2024.

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Core Indicators – Emission to Water

Fosfor (P)

Phosphorus is a chemical element. High levels of phosphorus compounds, together with nitrogen compounds and organic substances, can lead to increased biological activity in water, which in turn may cause overgrowth in watercourses.

2024	2023	2022	Unit
0.80	0.83	0.88	tonnes/year

The data present the amounts of substances in wastewater over the past three years. These values serve as a reference point for calculating efficiency per unit of net paper production. The chart above shows the long-term trend for the years 2014–2024.

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Lp.	Cel	Projekt	Planowane efekty	Status
1	Reduction of natural resource use by minimizing losses of hydrant water drawn from the Warta River	Modernization of the fire water network at APK SA – stage 10 (from pulping to flat settlers)	Maintaining water intake parameters below 100 m³/day despite the increasing average age of the water system.	A section of the network was constructed in the area from the pulping hall building to the flat settlers. Six new hydrants were installed. The set objective has been achieved.
2	Improved efficiency of the PM1 heat recovery system (reduction of energy costs)	Heat recovery system PM1: stage 3 – design phase	Reduction of fresh steam consumption in the modified section of the heat recovery system from approx. 5,770 kg of steam/h to 3,150 kg of steam/h – enabling more efficient use of waste heat. Reduction of installed power from 194 kW to 120 kW (fans).	Design work has been completed. The project implementation was combined with the modernization of the PM1 drying section. Currently, the Management Board has not approved the execution of the project.
3	Minimization of leaks and failures	Separation of the combined sewer system on APK grounds; construction of a new sanitary wastewater pumping station PG-B	1. The first stage of an investment project aimed at reducing the amount of sanitary wastewater pumped to the municipal sewage treatment plant and utilizing rainwater in the production process; 2. Operational stability of the installation; 3. Improvement of health and safety conditions (OHS).	The project was not implemented. Management approval for the investment was not obtained. The objective has been rescheduled for implementation in 2025.
4	Optimization of the wastewater treatment process; standardization of measurement equipment.	Replacement of two sampling stations at the wastewater treatment plant with new ones – at the inlet to reactor 1 and the outlet from the flotation unit	Obtaining reliable measurements of samples taken from the wastewater treatment process (improved sample quality through storage at 4°C), which will contribute to more accurate control and operation of the treatment process.	The project was fully completed. The stations are operating without any issues.
5	Reduction of natural resource use by utilizing excess warm water from the warm water tank, eliminating overflow into the channel	Construction of an overflow pipeline from the warm water tank to the filtrate tank (PM2)	Elimination of warm/clean water discharge into the sewer system, amounting to approx. 200 m³ per month – resulting in a reduction of wastewater load on the biological treatment plant.	Project completed. The intended objective has been achieved – 100% of the overflow water is now directed to the first water tank.

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Environmental Performance 2024

Lp.	Cel	Projekt	Planowane efekty	Status
6	Elimination of refrigerant leaks. Reduction of electricity consumption	Modernization of ventilation unit number 1 (PM1)	Over the past five years, a total of 52 kg of R410a refrigerant has been replenished due to system leaks. Because of its poor technical condition, the ventilation unit operated at full capacity, yet the output air parameters supplied to the hall significantly deviated from the desired levels. This mode of operation led to frequent shutdowns and accelerated wear of components.	The project has been completed. The chilled water unit was replaced, and the equipment is operating flawlessly. Its performance has contributed to improved working conditions in the paper machine hall. There are also no refrigerant leaks in the system – a frequent issue with the previous setup.
7	Reduction of steam usage – minimizing heat loss and heat emissions into the hall	PSI Replacement of end dryer hoods on PM1 and PM2	The values will be confirmed following the audit scheduled for August 2024.	The task was cancelled.
8	Reduction of electricity consumption by compressors	PSI Expansion of the compressed air system at APK	The estimated energy gain, based on the report, should amount to approximately 6.3 MWh per week.	The new compressor has been delivered to APK. Installation work is in progress. Commissioning is scheduled for the end of Q2 2025.
9	Reduction of electricity consumption through the use of new pulpers	PSI Modernization of the pulping department	Reduction of installed power from 1,110 kW to 760 kW (based on the conceptual design).	Management has approved the execution of the project across all disciplines. The first stage has been completed. Requests for quotations have been sent out. Project completion is scheduled for the end of Q2 2025.

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Environmental Objectives 2025 and Action Plan

No.	Environmental Objective	Project / Action	Related Environmental Aspect	Expected Environmental Outcome
1	Reduction of hydrant water losses	Modernization of the fire protection network – Stage XI	Water Consumption	Maintain intake below 100 m³/day; improve fire protection
2	Reduction of failures and wastewater losses	Separation of the sewer system and construction of PG-B pumping station	Papermaking Wastewater Discharge	Reduction of sanitary wastewater and recovery of rainwater
3	Modernization of ventilation unit PM2	Replacement of equipment and improvement of ventilation in the paper machine hall	Electricity Consumption, F-gas Emissions	Reduction of installed power from 74 kW to 60 kW
4	Reduction of energy consumption – compressors	Expansion of the compressed air system	Electricity Consumption	Savings of approx. 6.4 MWh/week
5	Protection of Biological Wastewater Treatment Plant blowers	Modernization of the blower station	Energy Consumption, Risk of Failure	Backup in case of power outage; improved safety
6	Modernization of siding (railway) lighting	Replacement of lighting with LED including automation	Electricity Consumption	Reduction of consumption by 25.16 MWh/year
7	Sludge drying test	Pilot project for belt dryer	Sewage Sludge	Assessment of waste mass reduction potential
8	Heat recovery PM1 – stage III	Modification of the heat recovery system	Thermal Energy Consumption	Reduction of steam usage from 5,770 to 3,150 kg/h
9	Heat recovery PM2 – conceptual design	Measurements, analysis, and modernization concept for PM2	Energy Consumption, Noise Emissions	Assessment of energy recovery potential and noise reduction
10	Modernization of wastewater reception from Pulp Preparation Department	Modernization of the wastewater system	Risk of Chemical and Oil Leaks	100% of wastewater redirected to a controlled tank
11	Noise emission reduction – PM1 and PM2	Installation of silencers + measurement station	Noise Emission	Maintaining noise level LAeq,D ≤ 45 dB (nighttime)
12	Reduction of water consumption – PM1 and PM2	Modernization of disc filters	Water Consumption	Savings of approx. 200 m³/day per machine
13	Maintaining sustainable sourcing of fibrous raw materials	Supply chain oversight of pulp	Pulp Consumption (Reduction of Natural Resources)	Maintaining 100% share of certified pulp; protection of forest resources

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Auditor's Statement

TÜVNORD

OŚWIADCZENIE

WERYFIKATORA ŚRODOWISKOWEGO
W SPRAWIE CZYNNOŚCI WERYFIKACYJNYCH I WALIDACYJNYCH

TÜV NORD Polska Sp. z o.o.
o numerze rejestracji weryfikatora środowiskowego EMAS PL-V-0001
akredytowany w odniesieniu do zakresu **NACE 17.12,** (Kod NACE) oświadcza,
że przeprowadził weryfikację, czy Organizacja, o której mowa w Deklaracji Środowiskowej z dn.: 04-06-2025

Arctic Paper Kostrzyn S.A.
ul. Fabryczna 1, PL / 66-470 Kostrzyn nad Odrą

numer rejestracyjny: PL 2.08.001-13

spełnia wszystkie wymogi rozporządzenia Parlamentu Europejskiego i Rady (WE) nr 1221/2009 z dnia 25 listopada 2009 r. dotyczące dobrowolnego udziału w systemie ekozarządzania i audytu we Wspólnocie (EMAS).

Podpisując niniejszą deklarację oświadczam, że:

- weryfikacja i walidacja zostały przeprowadzone w pełnej zgodności z wymogami rozporządzenia (WE) nr 1221/2009;
- wyniki weryfikacji i walidacji potwierdzają, że nie ma dowodów na brak zgodności z mającymi zastosowania wymaganiami prawnymi dotyczącymi środowiska;
- dane i informacje zawarte w deklaracji środowiskowej organizacji dają rzetelny, wiarygodny i prawdziwy obraz całej działalności organizacji w zakresie podanym w deklaracji środowiskowej.

Niniejszy dokument nie jest równoważny z rejestracją w EMAS. Rejestracja w EMAS może być dokonana wyłącznie przez organ właściwy na mocy rozporządzenia (WE) 1221/2009. Niniejszego dokumentu nie należy wykorzystywać jako oddzielnej informacji udostępnianej do wiadomości publicznej.
Oświadczam, że przeprowadzona weryfikacja spełnienia mających zastosowanie wymogów Załączników I, II, III i IV rozporządzenia (WE) 1221/2009 odbywała się w oparciu o nowe treści Załączników określonych:

- Rozporządzeniem Komisji (UE) 2017/1505 z dnia 28 sierpnia 2017 r. zmieniającym załączniki I, II i III do Rozporządzenia Parlamentu Europejskiego i Rady (WE) nr 1221/2009 w sprawie dobrowolnego udziału organizacji w systemie ekozarządzania i audytu we Wspólnocie (EMAS);
- Rozporządzeniem Komisji (UE) 2018/2026 z dnia 19 grudnia 2018 r. zmieniającym załącznik IV do rozporządzenia Parlamentu Europejskiego i Rady (WE) nr 1221/2009 w sprawie dobrowolnego udziału organizacji w systemie ekozarządzania i audytu we Wspólnocie (EMAS).

Grzegorz Tuleja
Kierownik Jednostki Certyfikującej
TÜV NORD Polska Sp. z o.o.

Oświadczenie nr EMAS/0240/2621/2025_0
Katowice, 18-07-2025

Sprawdź autentyczność certyfikatu na https://listareferencyjna.tuv-nord.pl/Lista_Referencyjna.php

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT
PL 2.08-001-13

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The Arctic Paper Kostrzyn SA Environmental Report is also available in Polish in both electronic and printed versions.

The next scheduled update will be published in spring of the following year.

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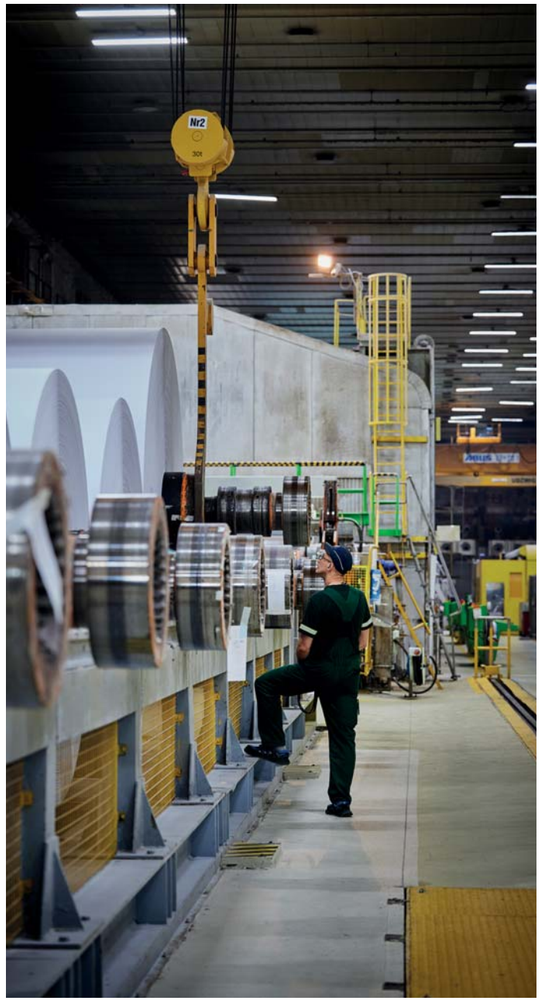

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Glossary

ACCREDITED COMPANY
A company approved by an official institution to carry out specific analyses and controls in industrial processes.

BIOLOGICAL WASTEWATER TREATMENT
A method of wastewater treatment using microorganisms to break down organic substances.

BLEACHING
A process to increase, for example, the brightness of pulp. Chemicals used may be ECF (Elemental Chlorine Free) or TCF (Totally Chlorine Free).

BOD_5
The amount of oxygen required by microorganisms to break down easily degradable organic matter within five days.

CARBON DIOXIDE (CO_2)
A naturally occurring gas produced by biological degradation and during combustion of fuels.

CHEMICAL PULP
A joint term for SULPHATE PULP and SULPHITE PULP, which are manufactured by chemically detaching the wood's fibres from one another.

CELULOZA MECHANICZNA
A joint term for pulp which is manufactured by mechanically detaching the wood's fibres from one another.

COD_{Cr}
The amount of oxygen required to chemically decompose organic compounds in water.

dB(A)
A-weighted decibel; a method of measuring sound that reflects human sensitivity to different frequencies.

EMAS
An EU-based environmental management system requiring an audited, publicly available annual environmental report.

EUTROPHICATION
Phosphorus (P) and Nitrogen (N) are nutrients that promote plankton growth. Excessive nutrient levels can lead to plankton blooms and oxygen depletion.

FINE PAPER
A generic term for graphic paper, writing paper and printing paper, and certain special types of paper.

HAZARDOUS WASTE
Waste especially harmful to the environment, such as certain chemicals, oils, used batteries, and electronic materials.

ISO 14001
An international standard for environmental management systems. Certification is issued after compliance.

PERMISSIBLE VALUE
A defined limit, set by environmental authorities, that must not be exceeded.

NITROGEN DIOXIDE (NO_2)
A gas formed during combustion of nitrogen, contributing to eutrophication.

RECEIVING BODY
An environmental component (e.g., river, sea, lake, or atmosphere) into which emissions are discharged.

OXYGEN-DEMANDING SUBSTANCES
Materials in wastewater that reduce the oxygen available to aquatic life. Measured as COD_{Cr} and $BOD_{5.}$

SUSPENDED SOLIDS (SS)
Fine particles (e.g., fibers) visible in wastewater, causing water to appear cloudy and reducing light penetration, which inhibits plant growth.

SULPHUR DIOXIDE (SO_2)
A gas released from burning sulfur-containing fuels, contributing to acid rain.

UNCOATED PAPER
Paper without an additional surface coating layer, applied using dedicated mixtures and equipment.

FSC-CERTIFIED RAW MATERIAL
Material guaranteed by the Forest Stewardship Council® (FSC) to exclude wood sourced illegally, in violation of customary rights, from high conservation value forests, genetically modified trees, or converted plantations.

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