

# EMAS 2025



ARCTIC PAPER

# Environmental Report 2025

## Table of Contents

|                                               |    |
|-----------------------------------------------|----|
| Preface                                       | 2  |
| Facts about Arctic Paper Kostrzyn SA          | 3  |
| Environmental Management                      | 4  |
| Environmental Policy                          | 4  |
| Paper Production                              | 5  |
| Local Processes                               | 6  |
| Main and Detailed Environmental               |    |
| Performance Indicators                        | 7  |
| Biodiversity                                  | 8  |
| Signifi cant Environmental Aspects            | 9  |
| Key Indicators                                | 10 |
| Environmental Performance 2025                | 18 |
| Environmental Objectives 2026 and Action Plan | 20 |
| Auditor's Statement                           | 22 |
| Contacts                                      | 23 |
| Glossary                                      | 24 |

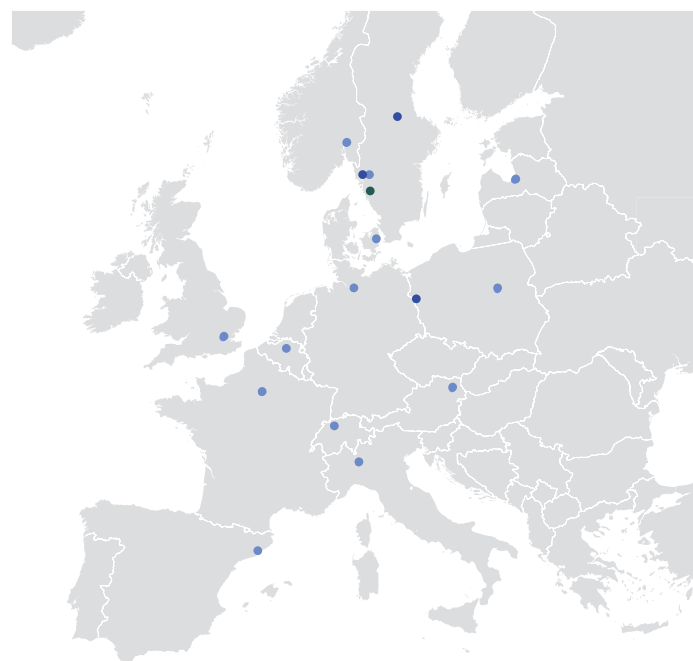
## Arctic Paper Kostrzyn SA

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 the leading manufacturers of high quality graphic fine paper in Europe. The company produces coated and uncoated woodfree paper for quality-conscious customers such as printers, book publishers, newspaper publishers, advertising agencies, paper distributors and packaging companies.

The product portfolio includes well-known brands such as Amber, Arctic, G and Munken.

The company has three paper mills:

- Arctic Paper Munkedals, Sweden
- Arctic Paper Grycksbo, Sweden
- Arctic Paper Kostrzyn, Poland

The production capacity of the three mills is approximately 630,000 tonnes of paper per year. The majority is sold through the company's 14 own sales offices in Europe.

Arctic Paper SA has been listed on the Warsaw Stock Exchange since October 2009 and on NASDAQ in Stockholm since December 2012.

# Preface



It is my pleasure to present the eighteenth edition of the Arctic Paper Kostrzyn S.A. EMAS Environmental Report, summarising our activities in 2025. This report not only fulfils the requirements of the EMAS environmental management system but, above all, reflects our commitment to responsibility and transparency towards our employees, customers, business partners, the local community, and all other stakeholders. It presents the environmental impact of our operations, the results we have achieved, and the measures we have taken to further reduce our paper mill's environmental footprint.

The year 2025 marked another period of consistent implementation of our sustainability strategy. Despite challenging market conditions and an increase in net production, we improved a number of key environmental performance indicators. We reduced the specific consumption of electricity, natural gas, and process water, while also lowering carbon dioxide emissions per tonne of paper produced. These results demonstrate that responsible environmental management can effectively support the development of modern industry while enhancing the efficiency of our processes and strengthening the Company's competitiveness.

One of our key priorities continues to be the efficient management of energy and water resources. These resources are fundamental both to our manufacturing processes and to the fulfilment of our environmental commitments. During the past year, we continued our investments and organisational initiatives aimed at improving energy efficiency, reducing the consumption of natural resources, and increasing the share of energy generated from renewable sources. The development of our own renewable energy sources remains one of the pillars of the Arctic Paper Group's strategy and an important element in building production with an increasingly lower carbon footprint.

We also continue to place great emphasis on the responsible sourcing of raw materials. Paper produced at our Kostrzyn mill is manufactured from wood fibres supplied by vendors certified under the FSC® and PEFC schemes, demonstrating our commitment to promoting responsible forest management, protecting biodiversity, and ensuring full traceability of raw material origin.

The past year also confirmed the effectiveness of the environmental management systems implemented within the Company. Arctic Paper Kostrzyn S.A. complies with all legal requirements applicable to its operations, and in 2025 we recorded no environmental incidents. This achievement is the result of the professionalism of our employees, our strong organisational culture, systematic process monitoring, and the consistent implementation of preventive measures.

We firmly believe that environmental responsibility is not a one-time initiative but a process of continuous improvement. For this reason, we openly communicate both our achievements and the challenges that still lie ahead. The EMAS system provides us with an effective framework for setting ambitious objectives, continuously improving our processes, and maintaining transparent dialogue with our stakeholders.

I would like to express my sincere gratitude to all employees of Arctic Paper Kostrzyn S.A. for their professionalism, commitment, and sense of responsibility, which enable us to continuously raise the standards of our operations. I would also like to thank our customers, suppliers, business partners, and the local community for their trust and cooperation, which together allow us to build a modern, responsible, and sustainable future.

**Michał Jarczyński**  
**President of the Management Board**  
**Arctic Paper Kostrzyn S.A.**  
Kostrzyn nad Odrą, June 12, 2026

# Facts about Arctic Paper Kostrzyn S.A.

|                 |                        |                                                                                                      |
|-----------------|------------------------|------------------------------------------------------------------------------------------------------|
| <b>Products</b> | Graphical Fine Papers: | Amber Graphic, Amber Terra, Amber Preprint, Amber Volume, Amber Highway Regular, Amber Highway Super |
|                 | Packaging Papers:      | Munken Kraft, Munken Kraft Highwhite                                                                 |

|                        |         |
|------------------------|---------|
| <b>Energy</b>          |         |
| Gas boilers            | 169 MW  |
| Back-pressure turbines | 18.7 MW |
| Gas turbines           | 21.8 MW |

|                       |                        |
|-----------------------|------------------------|
| <b>The Operations</b> |                        |
| Capacity              | 285,000* tonnes/year   |
| Sales                 | Export 73%, Poland 27% |
| Employees             | 447                    |

| Paper Machine | Width  | Grammage                | Speed     | Capacity            |
|---------------|--------|-------------------------|-----------|---------------------|
| MP 1          | 5.30 m | 35–120 g/m <sup>2</sup> | 950 m/min | 135,480 tonnes/year |
| MP 2          | 5.30 m | 70–170 g/m <sup>2</sup> | 800 m/min | 149,520 tonnes/year |

| Sheet Cutters | Sheet Width | Sheet Length | Production Capacity |
|---------------|-------------|--------------|---------------------|
| 6 units       | 30–160 cm   | 32–160 cm    | 180,000 tonnes/year |

|                         |               |
|-------------------------|---------------|
| <b>Storage Capacity</b> |               |
| Kostrzyn                | 16,000 tonnes |

## Certificates



|                                                                                      |                                |
|--------------------------------------------------------------------------------------|--------------------------------|
| Environmental management system ISO 14001:2015                                       | 0052495                        |
| Environmental management system EMAS 1221/2009 (with changes)                        | PL 2.08-001-13                 |
| Chain of Custody according to FSC®                                                   | PBN-COC-012351                 |
| Chain of Custody according to PEFC                                                   | PBN-PEFC-COC-000022            |
| Cradle to Cradle Certified® Material Health at Silver level according to version 3.1 | Cradle to Cradle Cert no: 8422 |
| EU Ecolabel                                                                          | EU Ecolabel licence PL/011/002 |

\* The production capacity presented for Arctic Paper Kostrzyn S.A. was updated in 2025 following a revision of the calculation methodology applied across the Arctic Paper Group. The revised figure reflects the current production mix, particularly the increased share of sheet production and paper grades with basis weights outside the paper machines' optimal operating range. This methodological update provides a more realistic representation of the mill's nominal production capacity.

# Environmental Management

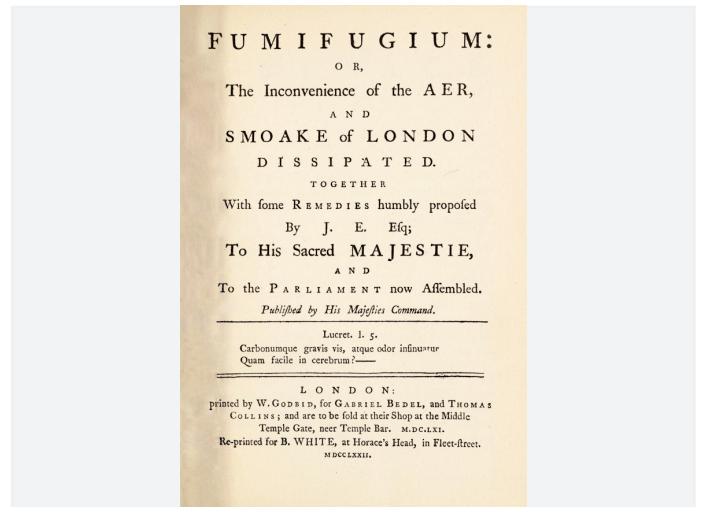
## Awareness

In modern history, the understanding of the interdependence between humans and the environment was marginalised 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.

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 organised 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 minimise its environmental footprint, improve operational efficiency, and foster open dialogue.

# Environmental Policy

**“With care for the natural environment, we always choose lasting solutions.”**

The objective of Arctic Paper Kostrzyn S.A. is to continuously improve its environmental and energy management systems, minimise the adverse environmental impact of its operations, and continuously enhance its energy performance.

To achieve these objectives, the Company:

- raises employees’ awareness of environmental protection and energy efficiency,
- maximises the use of certified raw materials,
- optimises water consumption,
- reduces specific energy consumption,
- minimises noise emissions to the environment,
- prevents pollution and ensures that all generated solid waste is properly recovered or managed,
- complies with all applicable legal requirements relating to environmental protection and energy management,

- ensures the availability of information and resources necessary to achieve its objectives,
- supports the procurement of energy-efficient products and services that contribute to improved energy performance,
- promotes the design and implementation of activities that enhance energy performance.

Arctic Paper Kostrzyn S.A. complies with all applicable legal requirements and provides reliable and transparent information on the environmental impact of its operations.

The Environmental and Energy Policy of Arctic Paper Kostrzyn S.A. is communicated to all employees and is available to all interested parties.

President of the Management Board

**Michał Jarczyński**

Kostrzyn nad Odrą, 1 April 2026

# 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 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 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

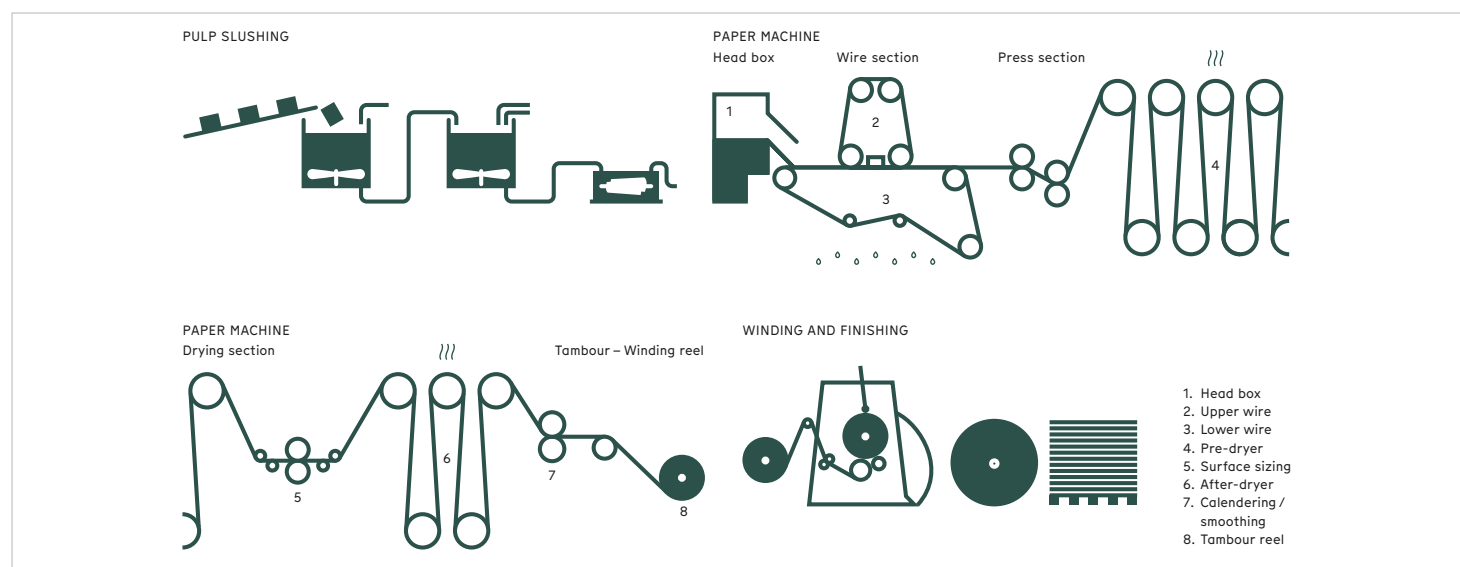
Pallets with sheets are provided with a cardboard top cover and then shrink-wrapped.

### 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.



# Local Processes

## Energy Use

- The primary fuel used for energy production is natural gas from local deposits. Backup fuels include light fuel oil and high-methane natural gas.
- The parameters of the gas are continuously monitored before combustion.
- The heat generated is used to produce process steam, which is then used for paper drying.
- 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.
- Air emission monitoring is carried out continuously or periodically, in accordance with current reference methodologies.

## Wastewater Treatment

- 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.
- 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.
- 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.
- Separated sludge from the mechanical and biological treatment is mixed and dewatered, and then sent for recycling, such as composting.



# Main and Detailed Environmental Performance Indicators

The following lists the raw materials, auxiliary materials, and energy required to produce 1 tonne of paper in 2025 (2024 and 2023). Additionally, emissions to air and water, as well as the amounts of waste generated by this process, are provided.

| Raw materials | 2025   | 2024   | 2023   |
|---------------|--------|--------|--------|
| Pulp          | 732.02 | 741.48 | 740.79 |
| Fillers       | 343.7  | 339.6  | 344.1  |
| Chemicals     | 57.86  | 52.31  | 54.5   |

| Water (m³)    | 2025     | 2024     | 2023     |
|---------------|----------|----------|----------|
| Process water | 10.93*** | 12.54*** | 15.84*** |

| Energy                 | 2025  | 2024  | 2023  |
|------------------------|-------|-------|-------|
| Electricity (kWh)      | 546.5 | 569.3 | 614.5 |
| Heat energy (GJ)       | 8.0   | 7.9   | 8.4   |
| Local natural gas (m³) | 320   | 366   | 442   |

| Recycling | 2025    | 2024    | 2023    |
|-----------|---------|---------|---------|
|           | 11.19   | 15.78   | 11.60   |
|           | 24.26** | 28.68** | 25.55** |

| Emission to air (kg) | 2025  | 2024  | 2023  |
|----------------------|-------|-------|-------|
| SO <sub>2</sub>      | 0.01  | 0.05  | 0.06  |
| NO <sub>2</sub>      | 0.47  | 0.51  | 0.59  |
| CO <sub>2</sub>      | 395.8 | 441.6 | 541.4 |

| Emission to water (kg) | 2025  | 2024  | 2023  |
|------------------------|-------|-------|-------|
| Suspension             | 0.042 | 0.037 | 0.060 |
| COD                    | 0.27  | 0.31  | 0.38  |
| BOD <sub>5</sub>       | 0.03  | 0.02  | 0.03  |
| Nitrogen (N)           | 0.070 | 0.071 | 0.100 |
| Phosphorus (P)         | 0.005 | 0.004 | 0.005 |

| Landfilling / Neutralization (kg) | 2025 | 2024 | 2023 |
|-----------------------------------|------|------|------|
|                                   | 0.26 | 0.32 | 0.65 |

| Hazardous waste (kg) | 2025 | 2024 | 2023 |
|----------------------|------|------|------|
|                      | 0.17 | 0.12 | 0.17 |

The above values are expressed per unit of net production, in accordance with the BAT (Best Available Techniques) reference methodology for the production of paper and board. Despite an increase in net production in 2025, improvements were achieved in key specific environmental performance indicators, particularly with regard to electricity consumption, natural gas consumption, CO<sub>2</sub> emissions, COD, and process water consumption.

| Compliance with the conditions of the integrated permit | Unit       | Permissible value according to the integrated permit | Result 2025 | Result 2024 | Result 2023 |
|---------------------------------------------------------|------------|------------------------------------------------------|-------------|-------------|-------------|
| Production (level net)                                  | tonne/year | 380,000                                              | 247,977     | 214,176     | 176,156     |
| <b>Pollutants discharged into water</b>                 |            |                                                      |             |             |             |
| COD                                                     | kg/tonne   | 1.5                                                  | 0.27        | 0.31        | 0.38        |
| Suspension                                              | kg/tonne   | 0.35                                                 | 0.04        | 0.04        | 0.06        |
| Total Nitrogen (N)                                      | kg/tonne   | 0.1                                                  | 0.07        | 0.07        | 0.10        |
| Total Phosphorus (P)                                    | kg/tonne   | 0.012                                                | 0.005       | 0.004       | 0.005       |
| BOD <sub>5</sub>                                        | mg/l       | 30                                                   | 3.13        | 1.98        | 2.29        |
| <b>Discharges to air</b>                                |            |                                                      |             |             |             |
| Dust                                                    | tonne/year | 13.04                                                | 0.7         | 0.8         | 1.2         |
| SO <sub>2</sub>                                         | tonne/year | 41.58                                                | 2.0         | 11.9        | 12.1        |
| NO <sub>2</sub>                                         | tonne/year | 348                                                  | 134         | 125.0       | 128.7       |
| CO <sub>2</sub> *                                       | tonne/year | not applicable                                       | 112,963     | 109,327     | 118,825     |
| <b>Other conditions</b>                                 |            |                                                      |             |             |             |
| Noise                                                   | dB(A)      | 55 (day) / 45 (night)                                | up to 55/45 | up to 55/45 | up to 55/45 |
| Fresh water intake                                      | m³ per day | 12,000                                               | 8,798       | 8,510       | 8,292       |
| Amount of wastewater                                    | m³ per day | 11,000                                               | 7,426       | 7,335       | 7,441       |
| Wastewater temperature                                  | °C         | 35                                                   | 15-31       | 12 – 32     | 16-31       |
| Sludge                                                  | tonne/year | 7,500                                                | 5,116**     | 4,346**     | 4,096**     |

We comply with all legal and other applicable requirements related to the operations of Arctic Paper Kostrzyn S.A. In 2025, no environmental incidents were recorded.

\* Free allocation of CO<sub>2</sub> emission allowances for the year 2025: 64,206 tonnes. No limit value has been specified for this parameter in the environmental permit

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

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

# 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 SA 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 people.

| Efficiency indicators                                          | Annual share value | 2025 | 2024 | 2023 |
|----------------------------------------------------------------|--------------------|------|------|------|
| Share of pulp suppliers holding FSC® and/or PEFC certification | %                  | 100  | 100  | 100  |

# 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 operations within the plant. For each individual process, input data was collected and output data defined, with particular focus on:

- 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 recognised 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<sub>2</sub>, sulphur 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

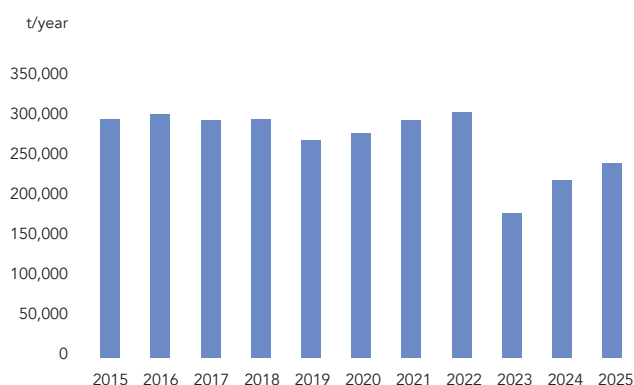


# Core Indicators

## Net Production (Annual Reference Values)

When assessing the Company's environmental performance, one of the key reference indicators is net paper production. The net production values presented in the trend chart serve as the basis for calculating the operational efficiency of the Company's key environmental performance indicators.

In 2023, a significant reduction in the effective operating time of the production line, while maintaining the production process in a state of operational readiness, resulted in a deterioration of the specific environmental performance indicators.



**Net Paper Production – Reference Values Used for the Calculation of Specific Environmental Performance Indicators (2023–2025)**

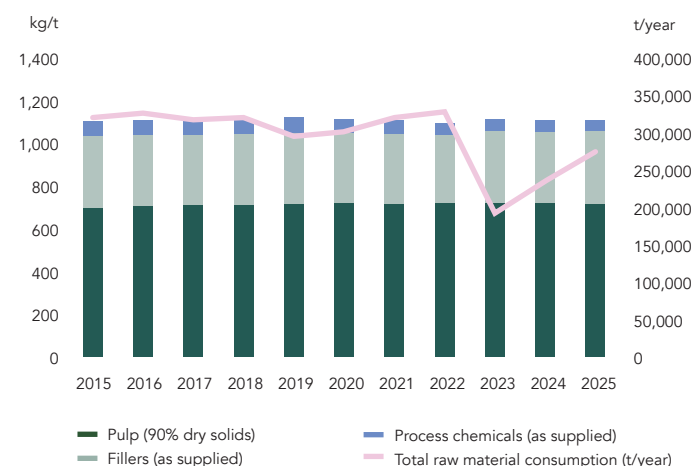
| 2025    | 2024    | 2023    | Unit        |
|---------|---------|---------|-------------|
| 247,977 | 214,176 | 176,156 | tonnes/year |

The data presented show net paper production, expressed in tonnes, for the last three years. These values serve as the reference basis for calculating the efficiency of resource consumption and emissions per unit of production (see page 7). The chart above illustrates the long-term production trend for the period 2015–2025.

## Raw Materials

The principal raw materials used in paper production are pulp, fillers, and process chemicals. These materials are delivered to the mill by sea, road, and rail transport.

For the key specific performance indicators, see page 7.



|                            | 2025    | 2024    | 2023    |
|----------------------------|---------|---------|---------|
| Total consumption [t/year] | 281,833 | 242,747 | 200,722 |
| Pulp [t/year]              | 181,524 | 158,808 | 130,494 |
| Fillers [t/year]           | 85,962  | 72,734  | 60,623  |
| Process chemicals [t/year] | 14,347  | 11,204  | 9,605   |

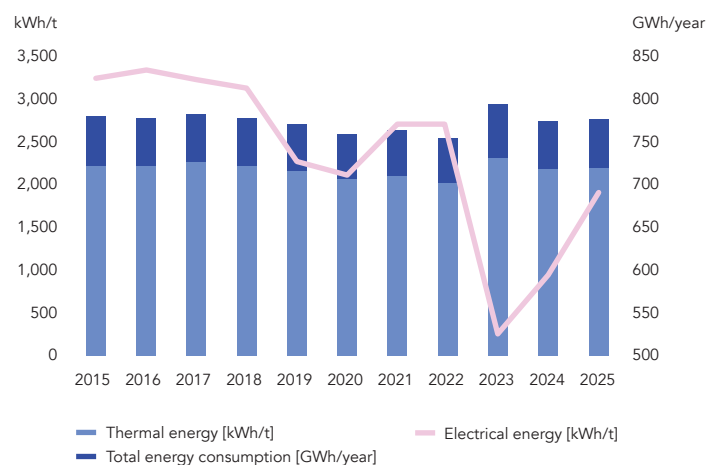
The data presented show raw material consumption, expressed in tonnes, for the last three years. These values serve as the reference basis for calculating the efficiency of raw material consumption per unit of net paper production. The chart above illustrates the long-term trend in raw material consumption over the period 2015–2025.

# Core Indicators

## Energy

The most energy-intensive processes in paper production are steam generation and the operation of the paper machine drives, refiners, and pumps. Steam is distributed to the drying cylinders, where the paper web is dried. The chart presents total energy consumption together with the breakdown between electrical and thermal energy.

For the key figures on energy consumption and the main energy sources, see page 7.



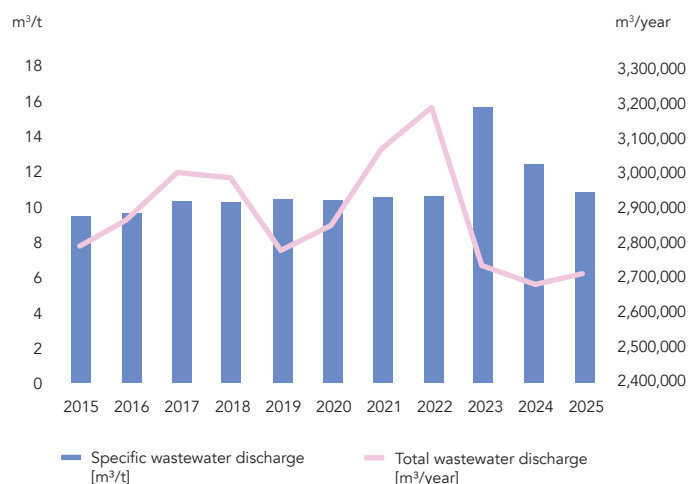
|                                      | 2025 | 2024 | 2023 |
|--------------------------------------|------|------|------|
| Total energy consumption [GWh/year]  | 688  | 593  | 521  |
| of which renewable energy [GWh/year] | 18.5 | 8    | 1.2  |

The data presented show total energy consumption for the last three years. These values serve as the reference basis for calculating energy consumption efficiency per unit of net paper production. The chart above illustrates the long-term trend in energy consumption over the period 2015–2025.

## Water

In paper production, water is used to disperse pulp into a fibre suspension and to transport the stock to the headbox of the paper machine. During paper formation, the fibre suspension is dewatered on the paper machine. Most of the water is recovered and recirculated within the mill. Water that is not recirculated is directed to the on-site wastewater treatment plant. Water consumption is measured as the volume of treated wastewater discharged from the mill.

For the key figures on water consumption and wastewater discharge, see page 7. The higher specific water consumption observed from 2023 onwards compared with previous years does not result from a deterioration of the production process but reflects changes in its operating characteristics.



|                                     | 2025      | 2024      | 2023      |
|-------------------------------------|-----------|-----------|-----------|
| Process water [m³/year]*            | 2,711,146 | 2,684,521 | 2,716,086 |
| Surface water consumption [m³/year] | 3,211,178 | 3,114,516 | 3,026,563 |
| Total water consumption [m³/year]   | 3,238,950 | 3,047,874 | 3,359,633 |

The data presented show water consumption for the last three years. Water consumption is measured as the volume of water discharged from the mill after treatment at the on-site wastewater treatment plant. These values serve as the reference basis for calculating water consumption efficiency per unit of net paper production. The chart above illustrates the long-term trend in water consumption over the period 2015–2025.

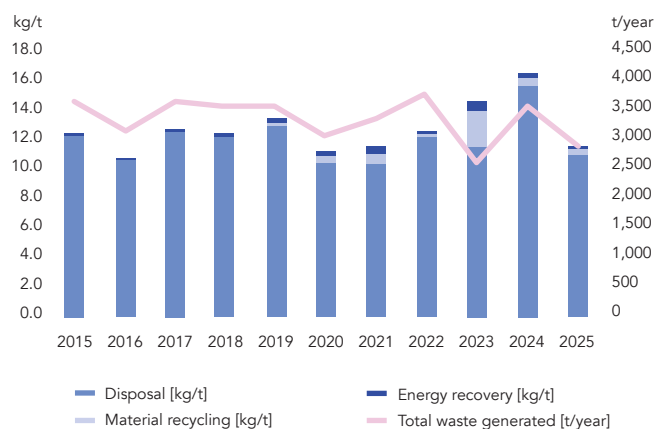
\* Water consumption is measured as the volume of wastewater discharged from the mill after treatment at the on-site wastewater treatment plant.

# Core Indicators

## Waste

The chart shows the amount of waste generated by the mill in relation to production. Wherever possible, waste is recycled. Waste that cannot be recycled is recovered for energy generation or disposed of at licensed landfill sites or sent to authorised waste treatment facilities.

For the key figures on waste generation and management, see page 7.



|                                   | 2025  | 2024  | 2023  |
|-----------------------------------|-------|-------|-------|
| Total waste generated [t/year]    | 2,930 | 3,559 | 2,623 |
| of which hazardous waste [t/year] | 41.91 | 26.55 | 29.85 |

The data presented show the amount of waste generated over the last three years. These values serve as the reference basis for calculating waste generation per unit of net paper production. The chart above illustrates the long-term trend in waste generation, including the dry mass of wastewater treatment sludge, over the period 2015–2025.

## Land Use in Relation to Biodiversity

The data presented show the land use categories associated with the mill's operations over the last three years. They include the total site area, sealed (impervious) surfaces, and areas remaining in a natural or semi-natural condition. These indicators provide a basis for assessing the mill's impact on biodiversity and changes in land use patterns. The objective of this monitoring is to minimise the conversion of ecologically valuable land and to support the preservation of green infrastructure.

| Land Use in Relation to Biodiversity, Expressed as Surface Area (m²): |           |           |           |
|-----------------------------------------------------------------------|-----------|-----------|-----------|
|                                                                       | 2025      | 2024      | 2023      |
| Total land use                                                        | 1,066,237 | 1,066,237 | 1,066,237 |
| Total sealed (impervious) surface area                                | 171,922   | 172,494   | 169,577   |
| Total nature-oriented area outside the facility                       | 798,978   | 798,481   | 799,183   |

# Core Indicators – Emission to Air

## Sulphur Dioxide (SO<sub>2</sub>)

Sulphur dioxide is generated primarily during the combustion of sulphur-containing fuels. This pollutant may contribute to the acidification of soils and surface waters. At Arctic Paper Kostrzyn S.A., SO<sub>2</sub> emissions are associated with the energy generation processes supporting paper production, as well as the generation of energy for the Company's own use and for export outside the installation.

The SO<sub>2</sub> emission indicators presented in this report refer to emissions to air from the Arctic Paper Kostrzyn installation. Total SO<sub>2</sub> emissions include emissions related both to paper production and to the generation of energy exported outside the installation. For the purpose of calculating the specific SO<sub>2</sub> emission indicator per tonne of paper produced, only the portion of emissions attributable to paper production has been taken into account, excluding emissions associated with exported energy. Variations between individual years result, among other factors, from the measurement methodology and fluctuations in plant operation. Emission levels remain within the BAT-associated performance requirements.

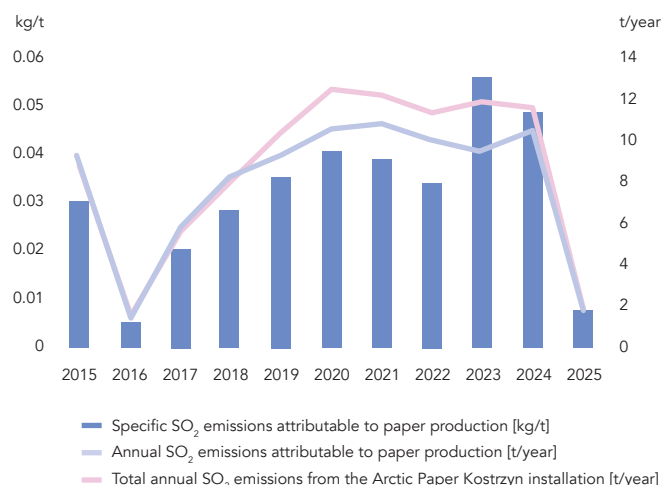
For the key figures on air emissions, see page 7.

## Nitrogen Oxides (NO<sub>x</sub>)

Nitrogen oxides (NO<sub>x</sub>) are a group of nitrogen and oxygen compounds formed primarily during combustion processes. NO<sub>x</sub> emissions may contribute to the acidification of soils and surface waters and may also adversely affect ambient air quality. At Arctic Paper Kostrzyn SA, NO<sub>x</sub> emissions are associated with the energy generation processes supporting paper production, as well as the generation of energy for the Company's own use and for export outside the installation.

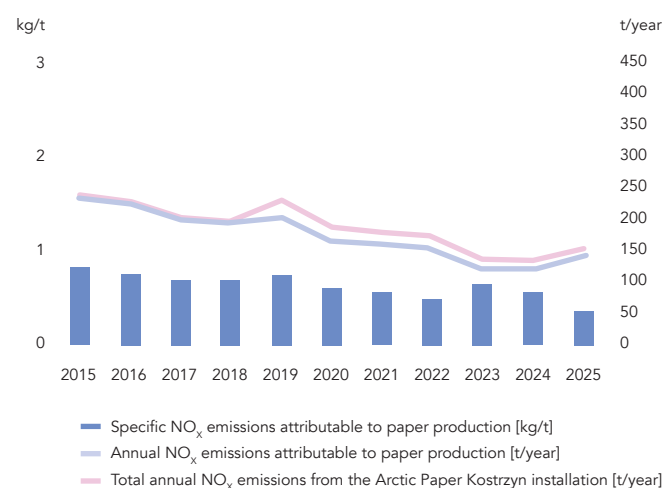
The NO<sub>x</sub> emission indicators presented in this report refer to emissions to air from the Arctic Paper Kostrzyn installation. Total NO<sub>x</sub> emissions include emissions related both to paper production and to the generation of energy exported outside the installation. For the purpose of calculating the specific NO<sub>x</sub> emission indicator per tonne of paper produced, only the portion of emissions attributable to paper production has been taken into account, excluding emissions associated with exported energy.

For the key figures on air emissions, see page 7.



|                                                                                             | 2025 | 2024  | 2023  |
|---------------------------------------------------------------------------------------------|------|-------|-------|
| Total annual SO <sub>2</sub> emissions from the Arctic Paper Kostrzyn installation [t/year] | 2.05 | 11.90 | 12.13 |
| Annual SO <sub>2</sub> emissions attributable to paper production [t/year]                  | 1.78 | 10.30 | 9.74  |

The data presented show SO<sub>2</sub> emissions to air over the last three years. Total emissions from the Arctic Paper Kostrzyn installation include emissions associated with paper production as well as energy exported outside the installation. Emissions attributable to paper production form the basis for calculating the specific SO<sub>2</sub> emission indicator per tonne of net paper production. The chart above illustrates the long-term trend in SO<sub>2</sub> emissions over the period 2015–2025.



|                                                                                             | 2025   | 2024   | 2023   |
|---------------------------------------------------------------------------------------------|--------|--------|--------|
| Total annual NO <sub>x</sub> emissions from the Arctic Paper Kostrzyn installation [t/year] | 133.98 | 125.04 | 128.74 |
| Annual NO <sub>x</sub> emissions attributable to paper production [t/year]                  | 116.40 | 108.18 | 103.33 |

The data presented show NO<sub>x</sub> emissions to air over the last three years. Total emissions from the APK installation include emissions associated with paper production as well as energy exported outside the installation. Emissions attributable to paper production form the basis for calculating the specific NO<sub>x</sub> emission indicator per tonne of net paper production. The chart above illustrates the long-term trend in NO<sub>x</sub> emissions over the period 2015–2025.

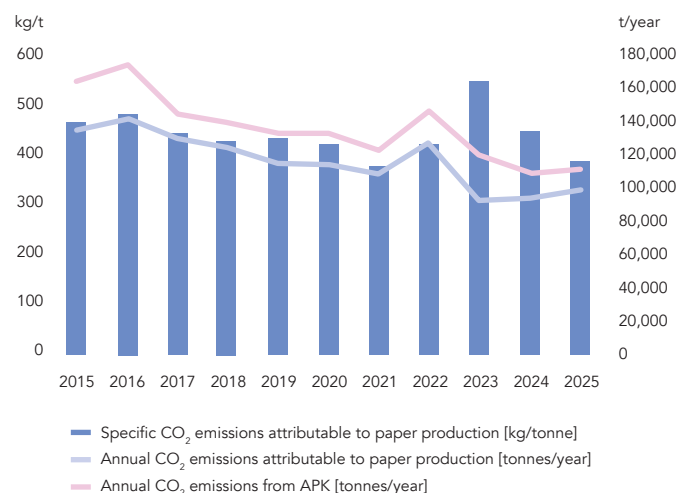
# Core Indicators – Emission to Air

## Fossil Carbon Dioxide (CO<sub>2</sub>)

Carbon dioxide is produced during the complete combustion of carbon-containing fuels in the presence of oxygen. The combustion of fossil fuels increases the concentration of carbon dioxide in the atmosphere because the carbon released has remained outside the natural carbon cycle for geological timescales. Rising atmospheric carbon dioxide concentrations are widely recognised as one of the main drivers of global climate change.

The CO<sub>2</sub> emission indicators presented in this report relate exclusively to emissions from fossil fuels. Total CO<sub>2</sub> emissions from the Arctic Paper Kostrzyn installation include emissions associated with paper production as well as the generation of energy exported / sold outside the installation. For the purpose of calculating the specific CO<sub>2</sub> emission indicator per tonne of paper produced, only the portion of emissions attributable to paper production has been taken into account, excluding emissions associated with exported energy.

For the key figures on air emissions, see page 7.



|                                                                                 | 2025    | 2024    | 2023    |
|---------------------------------------------------------------------------------|---------|---------|---------|
| Annual CO <sub>2</sub> emissions from APK [tonnes/year]                         | 112,963 | 109,327 | 118,825 |
| Annual CO <sub>2</sub> emissions attributable to paper production [tonnes/year] | 98,145  | 94,587  | 95,374  |

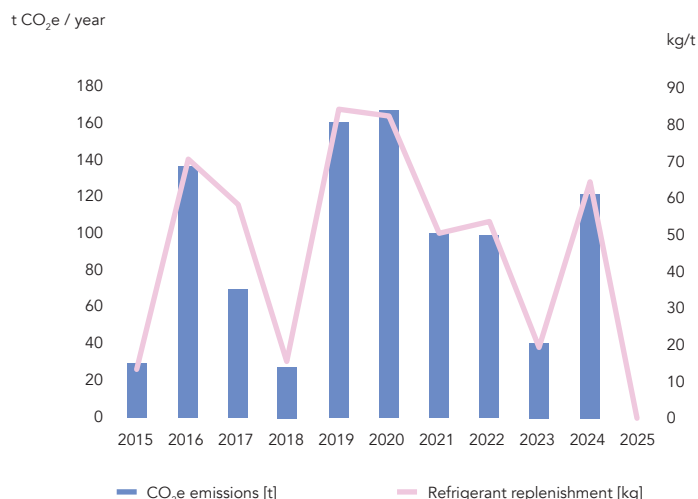
The data show CO<sub>2</sub> emissions from fuels combusted over the last three years. Total emissions from APK include emissions related to paper production as well as energy exported / sold outside the installation. CO<sub>2</sub> emissions attributable to paper production are used as the basis for calculating the specific CO<sub>2</sub> emission indicator per tonne of paper produced. The chart above shows the long-term emissions trend for the period 2015–2025.

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

Refrigeration systems use so-called F-gases, or fluorinated greenhouse gases, including hydrofluorocarbons (HFCs). Although these gases do not deplete the ozone layer, they have a significant impact on climate change due to their high global warming potential.

To enable the assessment of their climate impact, F-gas emissions are expressed as carbon dioxide equivalent (CO<sub>2</sub>e). The Global Warming Potential (GWP) indicates how many times a greenhouse gas contributes to global warming compared with 1 kg of CO<sub>2</sub>. Carbon dioxide has a GWP of 1, whereas the GWP of F-gases may reach several thousand.

The CO<sub>2</sub>e value is calculated by multiplying the mass of the emitted gas by its GWP. Expressing emissions in this way makes it possible to compare the climate impact of different greenhouse gases and to include refrigerant emissions in the organisation's overall carbon footprint.



|                                     | 2025 | 2024 | 2023 |
|-------------------------------------|------|------|------|
| Refrigerant replenishment [kg/year] | 0    | 62   | 19   |
| CO <sub>2</sub> e emissions [t]     | 0    | 118  | 39   |

# Core Indicators – Emission to Water

## Chemical Oxygen Demand (COD<sub>Cr</sub>)

Chemical Oxygen Demand (COD<sub>Cr</sub>) is a measure of the amount of organic substances in water that consume oxygen during chemical oxidation.

For the key figures on wastewater discharge, see page 9. The higher values recorded in 2023 compared with the preceding year did not result from a deterioration of the production process but rather reflected its operating characteristics.

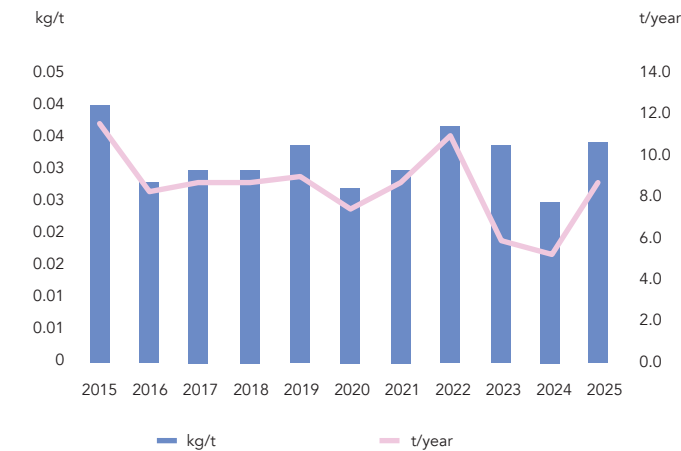


| 2025 | 2024 | 2023 | Unit   |
|------|------|------|--------|
| 67.0 | 67.1 | 66.3 | t/year |

The data presented show COD levels in wastewater over the last three years. These values serve as the reference basis for calculating the specific COD load per unit of net paper production. The chart above illustrates the long-term trend in COD over the period 2015–2025.

## Biochemical Oxygen Demand (BOD<sub>5</sub>)

Biochemical Oxygen Demand (BOD<sub>5</sub>) is a measure of the amount of oxygen consumed by microorganisms during the decomposition of organic matter in water over a five-day period.



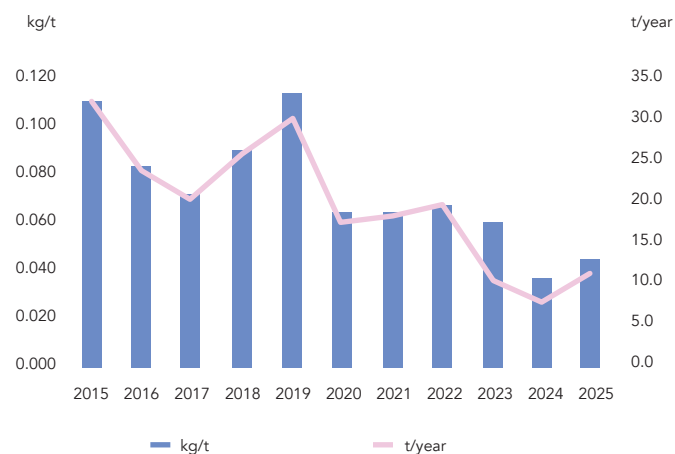
| 2025 | 2024 | 2023  | Unit   |
|------|------|-------|--------|
| 5.32 | 5.93 | 10.99 | t/year |

The data presented show BOD<sub>5</sub> levels in wastewater over the last three years. These values serve as the reference basis for calculating the specific environmental performance indicator per unit of net paper production. The chart above illustrates the long-term trend in BOD<sub>5</sub> over the period 2015–2025.

# Core Indicators – Emission to Water

## Suspended Solids (SS)

Suspended solids (SS) consist of fibre fragments and other solid materials (e.g. fillers) present in wastewater, which reduce water clarity. High concentrations of suspended solids limit light penetration into the water, thereby inhibiting the growth of aquatic plants.

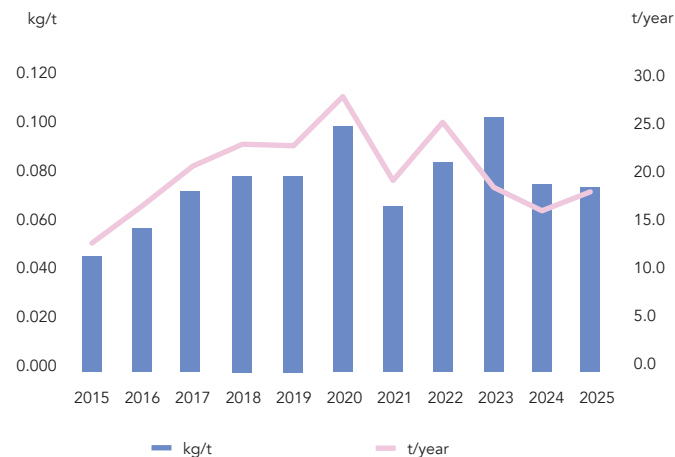


| 2025  | 2024 | 2023  | Unit   |
|-------|------|-------|--------|
| 10.42 | 7.94 | 10.57 | t/year |

The data presented show the levels of this parameter in wastewater over the last three years. These values serve as the reference basis for calculating the specific environmental performance indicator per unit of net paper production. The chart above illustrates the long-term trend over the period 2015–2025.

## Nitrogen (N)

Nitrogen is an element that occurs abundantly in the atmosphere. Elevated concentrations of nitrogen compounds, together with phosphorus compounds and organic matter, can stimulate excessive biological activity in water, leading to the overgrowth of watercourses.



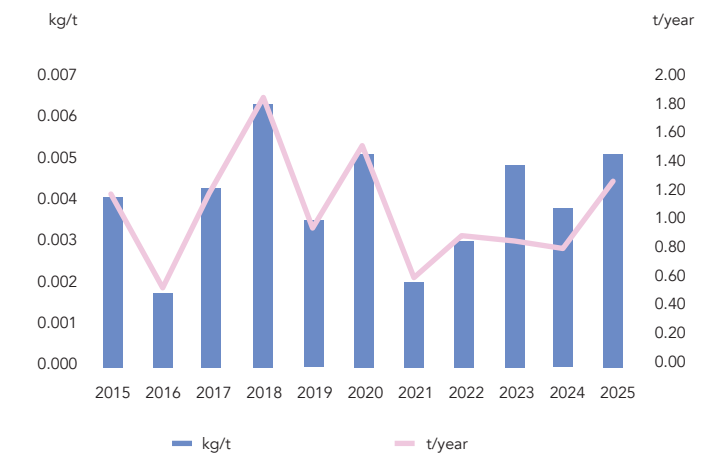
| 2025  | 2024  | 2023  | Unit   |
|-------|-------|-------|--------|
| 17.36 | 15.20 | 17.62 | t/year |

The data presented show nitrogen concentrations in wastewater over the last three years. These values serve as the reference basis for calculating the specific environmental performance indicator per unit of net paper production. The chart above illustrates the long-term trend in nitrogen concentrations over the period 2015–2025.

# Core Indicators – Emission to Water

## Phosphorus (P)

Phosphorus is a naturally occurring element. Elevated concentrations of phosphorus compounds, together with nitrogen compounds and organic matter, may contribute to eutrophication, resulting in the excessive growth of aquatic vegetation in watercourses.



| 2025 | 2024 | 2023 | Unit   |
|------|------|------|--------|
| 1.24 | 0.80 | 0.83 | t/year |

The data presented show phosphorus levels in wastewater over the last three years. These values serve as the reference basis for calculating the specific environmental performance indicator per unit of net paper production. The chart above illustrates the long-term trend in phosphorus levels over the period 2015–2025.



# Environmental Performance 2025

|   | Environmental Objective                            | Project / Action                                                                            | Related Environmental Aspect             | Expected Environmental Benefit                                                    | Status                                                                                                                                                                                                                                                      |
|---|----------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Reduction of fire water losses                     | Modernisation of the fire protection water network – Phase XI                               | Water consumption                        | Maintain water abstraction below 100 m <sup>3</sup> /day; improve fire protection | Not completed in 2025. Following the revision of investment priorities, implementation has been postponed and will be reconsidered as part of future environmental action plans.                                                                            |
| 2 | Reduction of wastewater failures and losses        | Separation of the sewer network and construction of the PG-B pumping station                | Paper mill wastewater discharge          | Reduction of sanitary wastewater and recovery of stormwater                       | Not completed in 2025. Following the revision of investment priorities, implementation has been postponed and will be reconsidered as part of future environmental action plans.                                                                            |
| 3 | Modernisation of the PM2 ventilation plant         | Replacement of equipment and improvement of ventilation in the machine hall                 | Electricity consumption, F-gas emissions | Reduction of installed capacity from 74 kW to 60 kW                               | Not completed in 2025. Following the revision of investment priorities, implementation has been postponed and will be reconsidered as part of future environmental action plans.                                                                            |
| 4 | Reduction of electricity consumption – compressors | Expansion of the compressed air system                                                      | Electricity consumption                  | Electricity savings of approximately 6.4 MWh/week                                 | Completed. A variable-speed compressor was installed and commissioned. To further improve compressor efficiency, the cooling system heat exchanger was inspected and verified, resulting in improved performance of both the compressor and the air dryer.  |
| 5 | Safeguarding operation of the WWTP blowers         | Modernisation of the blower power supply                                                    | Energy consumption, operational risk     | Emergency power supply backup, improved reliability and operational safety        | Technical project completed. The blower was adapted for connection to the emergency generator to ensure continued operation in the event of a power outage. The backup power system has been installed and commissioned.                                    |
| 6 | Modernisation of external lighting                 | Replacement of lighting with LED luminaires and installation of an automatic control system | Electricity consumption                  | Reduction in electricity consumption by 25.16 MWh/year                            | Completed. New LED luminaires were installed. In addition, an automatic lighting control system based on sunset time was implemented, together with a schedule limiting lighting between 22:00 and 06:00, when no transshipment operations are carried out. |

# Environmental Performance 2025

|    | Environmental Objective                                                           | Project / Action                                                        | Related Environmental Aspect        | Expected Environmental Benefit                                           | Status                                                                                                                                                                                                                                                                                                              |
|----|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7  | Sludge drying trials                                                              | Pilot testing of a belt sludge dryer                                    | Sewage sludge                       | Assessment of the potential to reduce sludge volume                      | Trials completed. Following an evaluation of the pilot test results and the available technical and organisational options, a decision was made not to implement the solution at this stage.                                                                                                                        |
| 8  | PM1 heat recovery – Phase III                                                     | Modification of the heat recovery system                                | Thermal energy consumption          | Reduction in steam consumption from 5,770 to 3,150 kg/h                  | Not completed in 2025. Implementation has been postponed following the revision of investment priorities and will be reconsidered as part of future environmental action plans.                                                                                                                                     |
| 9  | PM2 heat recovery – Conceptual design                                             | Measurements, analysis and development of the PM2 modernisation concept | Energy consumption, noise emissions | Assessment of the potential for energy recovery and noise reduction      | Conceptual design completed. The feasibility study, including the projected energy savings, has been completed. A detailed engineering design has been commissioned, with implementation planned in phases.                                                                                                         |
| 10 | Modernisation of wastewater collection from the Paper Production Department (WPP) | Modernisation of the wastewater collection system                       | Risk of chemical and oil leaks      | 100% of wastewater directed to a controlled collection system            | Not completed in 2025. Implementation has been postponed following the revision of investment priorities and will be reconsidered as part of future environmental action plans.                                                                                                                                     |
| 11 | Noise emission reduction – PM1 and PM2                                            | Installation of silencers and a noise monitoring station                | Noise emissions                     | Maintain noise levels below $L_{Aeq,D} \leq 45$ dB (night-time)          | Completed. Compliance with the applicable noise limits has been achieved and maintained, including the critical night-time level of $L_{Aeq,D} \leq 45$ dB. Noise reduction projects will continue as machinery and equipment located within the PM1 and PM2 production areas are replaced during normal operation. |
| 12 | Reduction of water consumption at MP1 and MP2                                     | Modernisation of multi-media filters                                    | Water consumption                   | Water savings of approximately 200 m <sup>3</sup> /day per paper machine | Not completed in 2025. Implementation has been postponed following the revision of investment priorities and will be reconsidered as part of future environmental action plans.                                                                                                                                     |

## Additional information:

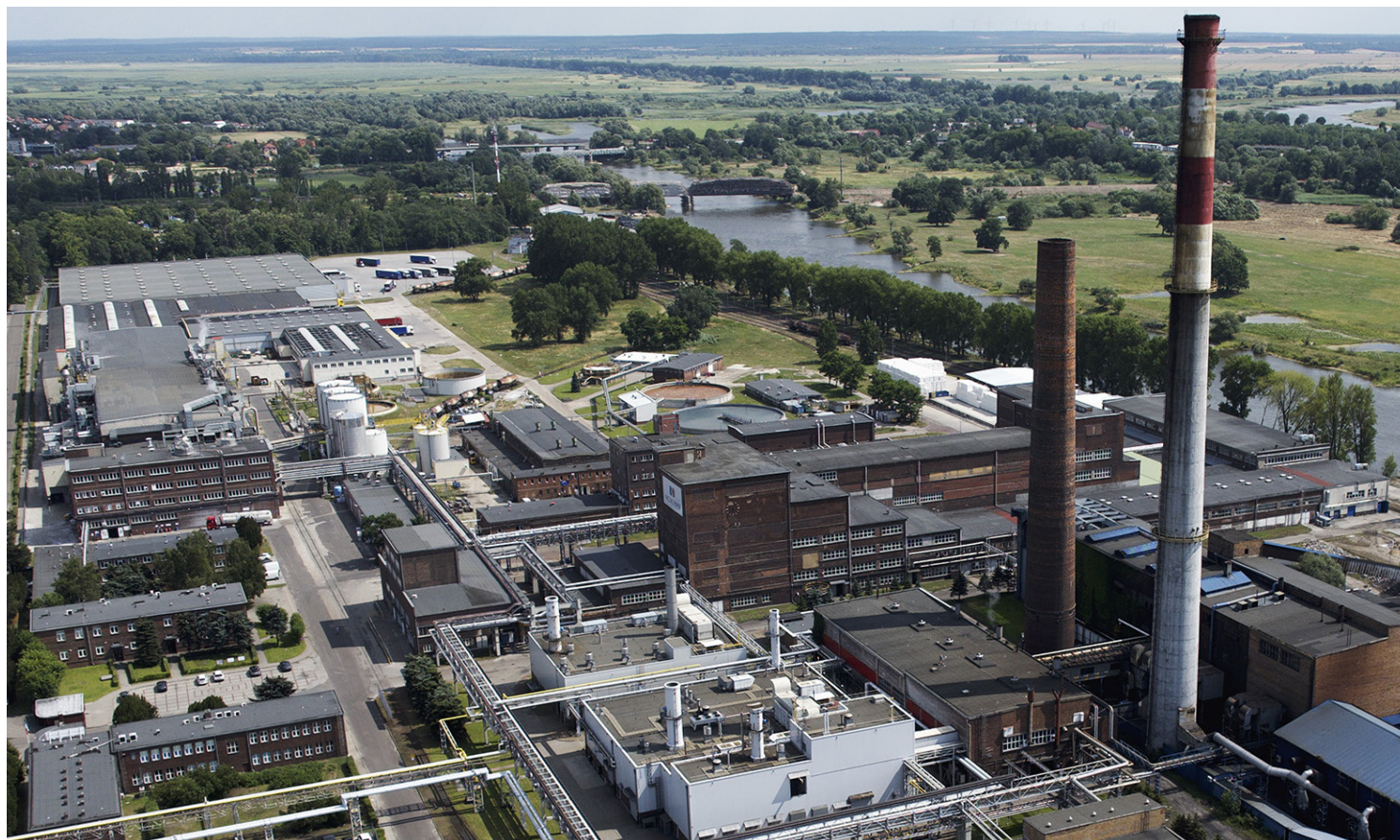
- In 2025, the photovoltaic (PV) installation at Arctic Paper Kostrzyn was expanded by an additional 9 MWp.
- All paper grades manufactured by Arctic Paper Kostrzyn are supported by ISEGA certification, confirming their suitability for food contact applications.

# Environmental Objectives 2026 and Action Plan

|   | Objective                                                | Project                                                                                                                                                                                                                                             | Expected Environmental Outcome                                                                                                                                                                                                                                                                                                                                                                            | Related Environmental Aspect                                         |
|---|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 1 | Improvement of wastewater management                     | <p>Modernisation of the combined sewer system and the wastewater pumping station.</p> <p>(Phase XI – separation of the combined sewer system within Arctic Paper Kostrzyn and construction of the new PG-B sanitary wastewater pumping station)</p> | <p>Reduced risk of failures and improved environmental protection.</p> <p>(This investment phase aims to reduce the volume of sanitary wastewater pumped to the municipal wastewater treatment plant (MZK) by recovering stormwater for use in the production process. Additional benefits include improved operational reliability of the installation and enhanced occupational health and safety.)</p> | Water consumption, wastewater discharge, environmental incident risk |
| 2 | Improvement of the installation's energy efficiency      | <p>Modernisation of ventilation systems</p> <p>(Modernisation of Ventilation Unit No. PM2)</p>                                                                                                                                                      | <p>Reduced energy consumption and improved working conditions.</p> <p>(Reduction of installed capacity from 74 kW to 60 kW)</p>                                                                                                                                                                                                                                                                           | Electricity consumption                                              |
| 3 | Improved efficiency of the PM2 heat recovery system      | <p>Modernisation of the PM2 heat recovery system – engineering design phase</p>                                                                                                                                                                     | <p>Reduced primary energy consumption.</p> <p>(Reduction in heating energy demand supplied by 5-bar steam by approximately 19 TJ/year. Reduction in electricity consumption by approximately 83 MWh/year. Values based on the feasibility study.)</p>                                                                                                                                                     | Thermal and electricity consumption                                  |
| 4 | Optimisation of the wastewater treatment process         | <p>Replacement of two sampling stations at the WWTP with new units (Influent to Reactor 1 and effluent from flotation)</p>                                                                                                                          | <p>Improved consistency and reliability of wastewater quality monitoring.</p>                                                                                                                                                                                                                                                                                                                             | Wastewater discharge, environmental incident risk                    |
| 5 | Optimisation of sludge management                        | <p>Evaluation of sludge recovery options</p> <p>Trials of sludge dewatering and drying technologies with suppliers AMCON and WATROPUR</p>                                                                                                           | <p>Minimisation of waste generation and reduction in the volume of dewatered sludge produced.</p>                                                                                                                                                                                                                                                                                                         | Waste generation                                                     |
| 6 | Ensuring the sustainable sourcing of fibre raw materials | <p>Monitoring of the pulp supply chain and verification of FSC®/PEFC certificates</p>                                                                                                                                                               | <p>Maintenance of supply chain compliance with environmental requirements. Continued use of 100% certified pulp and protection of forest resources.</p>                                                                                                                                                                                                                                                   | Consumption of natural raw materials (pulp, wood)                    |

# Environmental Objectives 2026 and Action Plan

|    | Objective                                   | Project                                                                                                                                            | Expected Environmental Outcome                                                                                                                                         | Related Environmental Aspect                                                                                    |
|----|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 7  | Energy Efficiency Monitoring                | Monthly analysis of energy consumption based on available data and identification of deviations                                                    | Ensuring control over energy consumption and identifying areas requiring optimisation                                                                                  | Electricity and thermal energy consumption                                                                      |
| 8  | Development of the Energy Management System | Development of Energy Performance Indicators (EnPIs) and baseline values. Preparation and implementation of the ISO 50001 Energy Management System | Improved energy management efficiency                                                                                                                                  | Electricity and thermal energy consumption                                                                      |
| 9  | Reduction of Natural Gas Consumption        | Construction of a 20 MW electrode boiler together with auxiliary installations                                                                     | Reduction in natural gas consumption; reduction of CO <sub>2</sub> emissions; increased share of electricity in the energy balance of the fuel combustion installation | Fuel consumption; emissions of gases and particulate matter to air; greenhouse gas (CO <sub>2</sub> ) emissions |
| 10 | Reduction of Environmental Noise Emissions  | Installation of acoustic noise control measures                                                                                                    | Maintaining noise emission levels below 45 dB under critical operating conditions (night-time period)                                                                  | Environmental noise emissions                                                                                   |



# 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 1712 (KOD NACE Rev. 2) / 17 (KOD NACE Rev. 2.1) oświadcza,  
że przeprowadził weryfikację, czy Organizacja, o której mowa w zaktualizowanej Deklaracji Środowiskowej z dn.: 12-06-2026

**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 zastosowanie wymaganiami prawnymi dotyczącymi środowiska;
- dane i informacje zawarte w zaktualizowanej 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\_1  
Katowice, 13-08-2026

Sprawdź autentyczność certyfikatu na [https://listareferencyjna.tuv-nord.pl/Lista\\_Referencyjna.php](https://listareferencyjna.tuv-nord.pl/Lista_Referencyjna.php)

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**EMAS**

**VERIFIED  
ENVIRONMENTAL  
MANAGEMENT**

PL 2.08-001-13

# Contacts

## For more information or to request environmental reports:

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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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# 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 used to increase the brightness of pulp. Bleaching may be carried out using Elemental Chlorine Free (ECF) chemicals or Totally Chlorine Free (TCF) processes.

## BOD<sub>5</sub>

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

## CARBON DIOXIDE (CO<sub>2</sub>)

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.

## MECHANICAL PULP

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

## COD<sub>Cr</sub>

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<sub>2</sub>)

A gas formed during combustion of nitrogen, contributing to eutrophication.

## RECEIVING WATER BODY

The environmental medium into which emissions or discharges are released, such as a river, lake, sea or the atmosphere.

## OXYGEN-DEMANDING SUBSTANCES

Substances present in wastewater discharged to the receiving water body that reduce the amount of dissolved oxygen available to aquatic organisms. Measured as Chemical Oxygen Demand (COD) and Biochemical Oxygen Demand (BOD<sub>5</sub>).

## SUSPENDED SOLIDS (SS)

Suspended solids (SS) consist of fibre fragments and other solid materials present in wastewater that reduce water clarity. High concentrations of suspended solids limit light penetration into the water, thereby inhibiting the growth of aquatic plants.

## SULPHUR DIOXIDE (SO<sub>2</sub>)

A gas generated during the combustion of sulphur-containing fuels. Sulphur dioxide contributes to the formation of acid rain.

## UNCOATED PAPER

Paper produced without one or more coating layers applied to its surface using specialised coating formulations and coating equipment.

## FSC-CERTIFIED RAW MATERIAL

The Forest Stewardship Council® is an international non-governmental organization that promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests. More information is available at: [www.fsc.org](http://www.fsc.org)



ARCTIC PAPER

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