Environmental Protection in the Aurubis Group

and Updated Aurubis AG Environmental Statement 2025
Hamburg and Lünen Sites

Aurubis
Metals for Progress

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"We are actively working towards a more sustainable future. As a pioneer in recycling and in sustainable metal production, we continually optimize our processes, ensuring the environment and natural resources are handled responsibly while steadily improving our environmental footprint across the entire supply and value chain."

Dear readers,

We have clear and ambitious targets at Aurubis. We continue to advance our Metals for Progress: Driving Sustainable Growth strategic growth agenda as we steadily transform into the world's most efficient and sustainable smelter network — with our sustainability targets at the heart of every step we take. We are delivering on these targets with comprehensive initiatives and measures.

This year we reached a key milestone with our investments in environmental protection. Since 2000, we have invested over € 1 billion in sustainable multimetal production and as such in the highest standards in our industry.

We are advancing our industry leadership in sustainability through projects like Industrial Heat 2.0 and the expansion of the Reducing Diffuse Emissions (RDE) system at the Hamburg site and improvements in slag processing at the Pirdop site.

We are committed to deliver.

Our metals are the key to an innovative world and essential to the success of the energy and mobility shift. Metals are the foundation of our future! Our products safeguard growth and progress and significantly contribute to Europe's independence, stability and security.

Recycling plays an especially important role here. Around two-thirds of investment funding approved for our strategy has been allocated to this growth area. We actively support key policy initiatives like the Critical Raw Materials Act and the circular economy.

We are proud that our work in sustainability and recycling was honored with the 2024 German Sustainability Award — a meaningful acknowledgement of the performance of the entire Aurubis team.

We look forward to continuing this journey together with our employees, partners and customers. We invite you to explore this Environmental Report and gain insight into environmental protection performance at Aurubis.

Inge Hofkens
Chief Operations Officer
Multimetal Recycling

Company profile and business model

The Aurubis Group

Aurubis AG is a company in the basic materials industry that operates worldwide. As an integrated group, we process complex metal concentrates, scrap metals, organic and inorganic metal-bearing recycling raw materials, and industrial residues into metals of the highest purity. Copper cathodes are the starting material for the manufacture of copper products, primiarily comprising standard and specialty products made from copper and copper alloys.

In addition to our main metal, copper, our metal portfolio also includes gold, silver, lead, nickel, tin and zinc, minor metals such as tellurium and selenium, and platinum group metals. Sulfuric acid, iron silicate, and synthetic minerals round off the Aurubis Group's product portfolio.

The company headquarters, also home to one of our two primary smelters, is in Hamburg, Germany. Most of our sites are located in Europe, with larger production centers in Germany, Belgium, Bulgaria and Spain, as well as cold-rolling mills for flat rolled products and rod plants in Germany and elsewhere in Europe. In June 2022, Aurubis began construction on the first secondary smelter for multimetal recycling in the US in Augusta (Richmond County, Georgia, US). The Ribbon Cutting Ceremony for the Aurubis Richmond site took place in September 2024. The first module of the Aurubis Richmond site will be gradually commissioned in the 2024/25 fiscal year. As part of the ongoing optimization of our production portfolio, a production site in Buffalo, New York, in the US was sold with effect on August 30, 2024. The Aurubis Group also has a global sales and service network.

Business model and Group structure

Metals play a pivotal role in a number of forward-looking applications. Following industrialization, automation and digitalization, the transformation to a more sustainable, carbon-neutral economy and society is currently posing significant challenges. Metals are fundamental to many solutions in this area, including electric vehicles and wind turbines. With currently around 20 metals, we are a key player in the transformation toward a more sustainable global economy.

The Aurubis Group's business is built on our decentralized smelter network with its three fundamental pillars: the processing of raw materials from the mining industry, the processing of recycling materials, and product business. Within the smelter network, the sites utilize their specific processing capabilities and continuously optimize their material flows to enhance the recovery of marketable metals and generate valuable products from all input materials. This allows the sites to reduce waste streams and leverage scaling effects, for instance in the large tankhouse and in precious metal processing in Hamburg. This provides Aurubis with a great deal of efficiency and flexibility in managing raw material procurement, production and sales. Different market cycles influence each of the three fundamental pillars as well.

We process copper concentrates that are obtained from ores and are offered by mining and trading companies on the global market. The necessary input materials for our two primary smelters in Hamburg and Pirdop are purchased worldwide. The production entities do not hold any stakes in mines, and each has a globally diversified supplier portfolio.

A significant portion of our copper concentrates is sourced from South American countries such as Chile, Peru and Brazil. Furthermore, raw materials are purchased from regions such as Bulgaria and Turkey. As a buyer of copper concentrates, the Aurubis Group competes here with other international primary smelters, particularly in China and Japan. Copper concentrates for the Hamburg site are primarily transported by waterway and are transshipped via the port terminal in Brunsbüttel. There the different copper concentrates are pre-mixed in accordance with the requirements of our production process.

Concentrates reach the site in Pirdop, Bulgaria, directly by land and by sea via the port of Burgas.

In addition to copper concentrates, copper scrap and various types of organic and inorganic metal-bearing recycling raw materials, industrial residues, and bought-in metallurgical intermediates are used as feed material. The four secondary smelters in Lünen (Germany), Olen and Beerse (both in Belgium), and Berango (Spain) buy most of the copper scrap and metal-bearing recycling raw material input on the European and North American markets. Furthermore, we use copper scrap with high copper content to control the processes in both of our primary smelters in Hamburg and Pirdop. The primary site in Hamburg also processes small quantities of precious metal-bearing recycling materials. Metal trading companies are the primary suppliers of recycling materials, though some of these recycling materials also make their way to us directly from industry to our production cycle through our closing-the-loop approach.

On the demand side, the Aurubis Group's main competitors for these input materials are other copper and metal smelters, as well as metal processors that also utilize recycling materials. Most of the copper scrap reaches us by land.

In the course of our production processes, copper concentrates and recycling materials are converted into copper cathodes. This is the standardized product format that is traded on the international metal exchanges. Copper cathodes are the starting product for fabricating additional copper products, but they can also be sold directly.

The Aurubis Group's product portfolio mainly comprises standard and specialty products made of copper and copper alloys. In terms of processing capabilities, we have manufacturing capacities for continuous cast copper wire rod, continuous cast shapes, rolled products, strip, specialty wire, and profiles.

Additional products result from processing the non-copper elements in the feed materials. Targeted purchases of some of these elements are made in the Group's production entities. In particular, these include various metals such as gold, silver, lead, nickel, tin and zinc, minor metals like tellurium and selenium, and platinum group metals. Iron silicate and synthetic minerals are also produced.

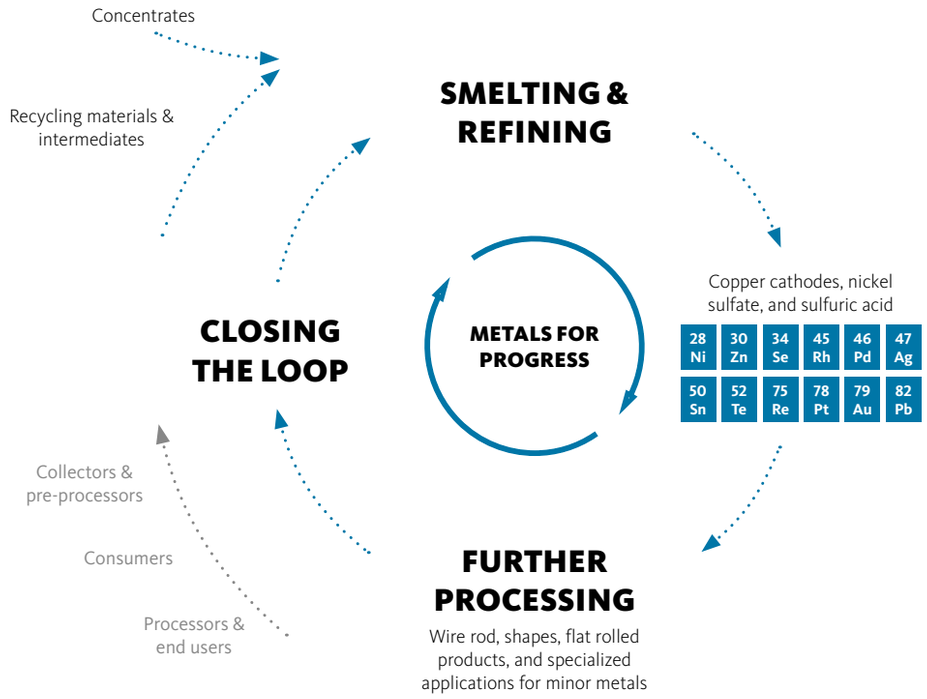
Sulfuric acid forms as a by-product of copper concentrate processing. Sulfuric acid customers are very diverse and include international companies from the chemical, fertilizer and metal processing industries.

The sales markets for our products are varied and international. The production sites' customers include companies from the bank sector, copper semis industry, the cable and wire industry, the electrical and electronics sector, and the chemical industry, as well as suppliers from the renewable energies, construction and automotive sectors. To close the value chain for copper and other metals, we place a high priority on the closing-the-loop approach. The focus of this approach is on materials such as production waste and residues that accumulate along the copper value chain in production, for example with our production sites' customers. The materials range from copper scrap with very high copper content, which can be directly fed into the copper fabrication process again, to stamping waste containing precious metals and high levels of copper, alloyed scrap, slags from foundries, and other industrial residues.

Our strategy defines sustainable action and management as a central consideration across all areas of the company. We continue to anchor sustainability throughout the entire company and in all of our workflows, processes and strategic projects in particular, based on binding targets and appropriate measures. We have also acknowledged the importance of sustainability in our organizational structure: The sustainability function is placed at the highest level directly in the CEO's business division.

We hedge fluctuations in metal and energy prices and the US dollar exchange rate in accordance with our hedging strategy for the most part.

Fig. 1.1: The Aurubis AG business model



Our Group structure
In the reporting period, the Aurubis Group's organizational framework was based on the underlying business model. Since fiscal year 2021/22, the two Multimetal Recycling and Custom Smelting & Products segments have formed the fundamental organizational structure.

The **Multimetal Recycling (MMR) segment** comprises the recycling activities in the Group and thus the processing of copper scrap, organic and inorganic recycling raw materials containing metal, and industrial residues. The segment mainly includes the sites in Lünen (Germany), Olen and Beerse (both in Belgium), and Berango (Spain). The secondary smelter, Aurubis Richmond, currently under construction in the US state of Georgia, is also included in this segment.

The **Custom Smelting & Products (CSP) segment** comprises the production facilities for processing copper concentrates and for manufacturing and marketing standard and specialty products such as cathodes, wire rod, continuous cast shapes, strip products, sulfuric acid, and iron silicate. The CSP segment is also responsible for precious metal production. The sites in Hamburg (Germany) and Pirdop (Bulgaria) manufacture copper cathodes. Together with the copper cathodes produced in the MMR segment, they are processed further into wire rod and continuous cast shapes at the Hamburg (Germany), Olen (Belgium), Emmerich (Germany), and Avellino (Italy) sites. The Buffalo (US, until August 30, 2024), Stolberg (Germany), and Pori (Finland) plants produce flat rolled products and specialty wire products.

	Multimetal Recycling (MMR)	Custom Smelting & Products (CSP)
Input materials	Scrap/blister Slags/residues E-scrap Other recycling materials	Concentrates Scrap/blister E-scrap Other recycling materials
Products	Cu cathodes Other minor metals	Cu cathodes Sulfuric acid Precious metals Minor metals Wire rod Shapes Rolled products, other
Sites	**Recycling plants:** Beerse (BE), Berango (ES), Lünen (DE), Olen (BE), Richmond (US)	**Primary smelters:** Hamburg (DE), Pirdop (BG) **Other sites:** Avellino (IT), Buffalo (US) until August 30, 2024, Olen (BE), Pori (FI), Emmerich (DE), Röthenbach (DE), Stolberg (DE)
Earnings drivers	Refining charges (RCs) for recycling materials, cathode premium, metal result	Treatment and refining charges (TC/RCs) for concentrate processing, RCs for scrap and blister, metal result, revenues from sulfuric acid, cathode premium, product surcharges

Our environmental policy — Company guidelines on environmental protection

To ensure that our environmental protection standards are safeguarded throughout the Group and continuously optimized, we have established the following principles as our company guidelines:

- The continuous improvement of environmental performance, in particular of water pollution control, soil protection, and immission control, is a key target of the Environmental Protection division.
- To ensure accountability, environmental and climate protection efforts should be designed to conserve natural resources, protect ecosystems and biodiversity, and, as far as is technically possible, prevent or minimize strain on the environment and our employees.
- Issues of environmental protection should be taken into account equally in the planning and development of new products and production processes.
- Processed raw materials and intermediate products should be brought into the economic cycle as completely as possible, and unavoidable waste should be properly recycled or harmlessly disposed of. Raw material suppliers are advised on issues related to environmental protection as needed.
- Technical and organizational measures to prevent accidents and operational disruptions are in place to prevent or minimize environmental hazards for our employees and neighbors, as well as impacts on the environment.
- Our employees' sense of responsibility in environmental protection should be strengthened and objective, open, and respectful dialogue should take place with them, the relevant authorities, and the public.
- Our customers are appropriately informed about the features of our products and necessary safety measures and are advised on questions related to product disposal.
- Contractors working for us are to be selected, informed and advised in such a way as to ensure that laws and our environmental protection standards are observed.

Compliance with legal regulations is the basis and minimum standard for our activities. Ongoing improvement in environmental protection is enshrined in our corporate strategy and is one of our key responsibilities.

Environmental protection in the Aurubis Group

Environmental protection is part of the corporate strategy
At Aurubis, responsible corporate governance is a fundamental pillar in securing the company's long-term viability.

The previous company strategy was updated in fiscal year 2020/21 and is now expressed by our "Metals for Progress: Driving Sustainable Growth" motto. The key elements of the strategy are securing and strengthening the core business, pursuing growth potential, and expanding our industry leadership in sustainability. As we continue to develop our company strategy, our sustainability aspirations will be even more deeply embedded across all areas and activities of the company

The key "industry leadership in sustainability" element includes the focus areas of people, the environment, and the economy, with our nine action areas. For each action area, new or continuing targets were defined for 2030.

More information on sustainability at the Aurubis Group is available from our current sustainability reporting at:
https://www.aurubis.com/en/responsibility/reporting-kpis-and-esg-ratings

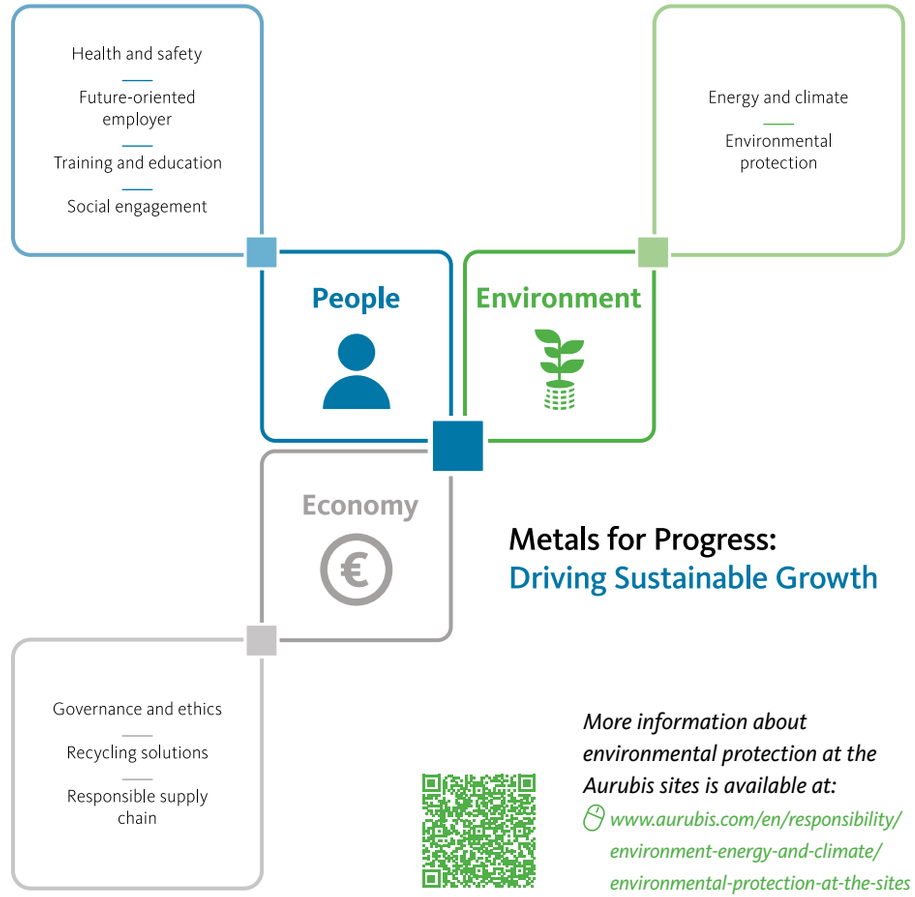
We are recognized as a leader in environmental protection in our industry and remain committed to continuous improvement. Environmentally friendly multimetal production from primary raw materials, such as ore concentrates, along with recycling are the foundation for a responsible and demand-oriented metal supply. Through these efforts, we are securing the long-term viability of our sites and establishing a basis for future-oriented investments.

As a multimetal group, Aurubis assumes responsibility for protecting the environment and the climate. The efficient use of natural resources and energy as well as the reduction of CO_2 emissions are an important part of the company's ecological and economic responsibility and have been part of our corporate culture for many years. Aurubis takes a holistic view of the entire value chain, aiming to strike a balance among the economy, the environment, and people.

For all production sites and across all business processes, Aurubis places an emphasis on modern and energy-efficient plant technology that complies with high environmental standards. We also develop innovative and energy-efficient technologies in environmental protection that often set new benchmarks worldwide and form the basis for establishing best available techniques (BAT) at the European level. We are working closely with the University of Düsseldorf on developing advanced methods for detecting diffuse emissions using drones, for example. The insight gained will support ongoing improvements and the development of efficient and effective measures.

Metals are necessary for technical progress and a high standard of living. The surge in global demand is constrained by finite resources. Metal recycling is therefore an important source of raw materials — especially for a country like Germany with limited natural resources. It plays a vital role in ensuring supply security, protecting the environment and natural resources, and advancing decarbonization. The importance of recycling products once they reach the end of their life cycle continues to grow. We use valuable raw materials efficiently, conserving resources and minimizing environmental impact. Copper, our core product, is ideally suited for this purpose, as it can be recycled indefinitely without any loss of quality. This means that copper of the highest purity can be produced from recycling materials again and again. We at Aurubis have created an internal function for this as well: Customer Scrap Solutions unites copper product sales and the sourcing of recycling raw materials. This is how customers also act as suppliers. In the spirit of resource conservation, nearly all raw materials are transformed into marketable products, and waste is effectively minimized and — wherever possible — recycled.

Fig. 1.2: Our key topics



More information about environmental protection at the Aurubis sites is available at:
www.aurubis.com/en/responsibility/environment-energy-and-climate/environmental-protection-at-the-sites

Environmental management organization
Chief Operations Officer for Multimetal Recycling Inge Hofkens and Head of Corporate Environmental Protection Dr. Karin Hinrichs-Petersen are responsible for the strategic positioning of environmental protection in the Group. Environmental officers oversee the environmental protection duties at the individual sites under the technical supervision of Corporate Environmental Protection. They are brought in if an impacted site falls under another member of the Executive Board's remit.

With the involvement of employees, plant managers/managing directors, and the Executive Board, uniform environmental protection standards were developed, established in a corporate policy, and implemented across the Group as part of the environmental management system (ISO 14001 or EMAS).

The EMAS (Eco-Management and Audit Scheme) environmental management system fulfills the ISO 14001 environmental management standard. However, it extends beyond a pure management system and is geared toward performance: The intention is for the organization to improve beyond the requirements laid out under environmental law. The system and the internal documents, including a report (the Environmental Statement), are audited by external, independent, state-approved, monitored environmental auditors. This environmental protection report includes the Environmental Statements for Aurubis AG, and therefore for the Hamburg and Lünen sites as part of the EMAS registration.

Moreover, energy management systems in accordance with ISO 50001 have been implemented and certified at all sites. The annual external audit in the scope of the certifications is an opportunity for us to have the successful environmental protection measures confirmed by an independent third party and to recognize additional potential for improvement.

The Corporate Environmental Protection Policy defines areas of activity and responsibility, specifies information and reporting requirements, and establishes the duties of Corporate Environmental Protection, as well as cooperation with the local environmental protection officers and the managing directors/plant managers. This ensures a uniform approach to environmental protection within the Group and in terms of public image. The Group headquarters supports the sites with expertise and technology transfer. All of this makes an important contribution to implementing our new Group strategy in environmental protection.

Compliance with legal regulations is the basis and minimum standard of our activities. The regulations that are significant for our production include in particular the German Federal Immission Protection Act, the Closed Cycle and Waste Management Act, the Water Management Act, and the European chemical regulation, REACH. The results of internal and external assessments confirm that the legal regulations and guidelines from the permits are fundamentally adhered to.

In 2017, an integrated management system (IMS) was developed for Aurubis AG for the areas of environment, energy, quality management, and occupational health and safety. It has since been certified for all the areas mentioned. The IMS utilizes synergies, harmonizes processes, and improves management in these areas.

Furthermore, we determine key environmental protection factors (KPIs), which are uniform within the Group and are reviewed and certified by external auditors annually.

There are plans to introduce a software program Group-wide in the future to simplify compliance with all laws and standards. The software is already in use for certain sub-areas at the Hamburg site. The plan is to gradually expand the rollout to the individual sites and at Group level.

Environmental topics are regularly discussed across the Group and employees receive ongoing training on environmentally relevant issues.

Emergency plans and alarm and hazard prevention plans have been established for emergency sistuations and accidents. These measures ensure that environmental impacts are effectively avoided and that employees and the community are protected. We regularly carry out training sessions and emergency drills and document and evaluate the procedures. Emergency plans are developed in coordination with the responsible authorities. The Corporate Environmental Protection Policy also covers responsibilities related to implementing the European chemical regulation, REACH.

More information on the topic is available at
www.emas.de/en

Supported by the Aurubis Operating System (AOS) introduced in 2017, production processes are systematically analyzed and continuously optimized with environmental aspects in mind. The environmental management system therefore ensures that, in addition to production targets, environmental protection targets can also be achieved and development opportunities can be utilized.

We regularly evaluate opportunities and risks that the company faces to ensure we are ready for future challenges. We launch projects to leverage any opportunities we identify. Risk management is in place to prevent environmental damage, non-compliance and unexpected costs. Environmental risks are routinely assessed and proactively reduced through the implementation of precautionary measures. For this purpose, we contract external experts to carry out regular environmental risk assessments at every production site. These assessments cover topics like emissions to air and water, water management, and the handling of hazardous substances, along with the challenges that climate change poses.

In 2024, Aurubis updated the environmental risk assessments for all of its majority-owned production sites, specifically expanding them to include the evaluation of environmental risks related to climate change based on multiple scenarios.

Fig. 1.3: Environmental management in the Aurubis Group

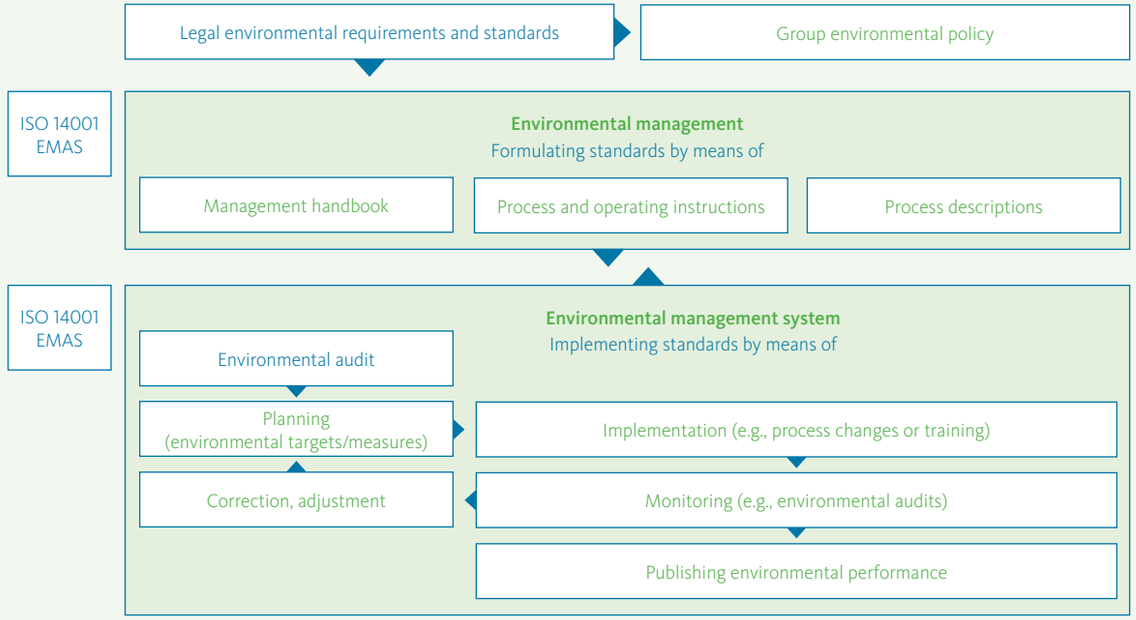


Fig. 1.4: Site certifications

Site	EMAS	ISO 14001	ISO 50001	ISO 45001	ISO 9001	ISO 27001	IATF 16949	EfbV	WEEELABEX[1]	Copper Mark
Hamburg, headquarters (DE)	x	x	x	x	x	x				x
Lünen (DE)	x	x	x	x	x	x		x	x	x
Pirdop (BG)		x	x	x	x	x				x
Olen (BE)		x	x	x	x	x				x
Beerse, Metallo (BE)		x	x	x	x	x				x
Berango, Metallo (ES)		x	x	x	x	x				
Emmerich, Deutsche Giessdraht (DE)		x	x	x	x	x				
Avellino (IT)	x	x	x	x	x	x				
Röthenbach, RETORTE (DE)		x	x	x	x	x				
Hamburg, Peute Baustoff (DE)		x	x	x	x	x				
Buffalo (US)[2]		x	x	x	x	x	x			
Pori (FI)		x	x	x	x	x				
Stolberg (DE)		x	x	x	x	x	x			x
Stolberg, Schwermetall (DE)[3]	x	x	x	x	x					

[1] WEEE label of excellence.
[2] The signing and closing of the sale took place on August 30, 2024.
[3] Not majority-owned by Aurubis (50 % stake).

EMAS: system of specifications for environmental management systems and environmental audits
ISO 14001: standard for environmental management systems
ISO 50001: standard for energy management systems
ISO 45001: standard for occupational safety management systems
ISO 9001: standard for quality management systems
ISO 27001: standard outlining requirements for information security management systems
IATF 16949: standard for quality management systems in the automotive industry, based on ISO 9001
EfbV: Ordinance on Specialized Waste Management Companies (German certificate)
WEEELABEX: standards for the collection, sorting, storage, transport, preparation for reuse, treatment, processing and disposal of waste electrical and electronic equipment
Copper Mark: quality seal for the copper sector for responsible copper production based on 32 internationally recognized sustainability criteria

Dialogue with interested parties and commitment

We have determined and evaluated the interested parties that are relevant for Aurubis: Governmental authorities, non-governmental organizations, customers, and employees play an important role in particular. Aurubis continued to hold open dialogue with authorities, citizens, and other interested parties across the Group in the past year. This helps us understand the expectations and requirements that those around us place on us and to take them into account in our activities. We also took part in various environmental projects.

In 2013, the European Commission recommended the methods of the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF) for measuring environmental performance on the basis of reliable, verifiable and comparable information. Since then, Aurubis has actively participated in the pilot and transition phases, helping to test the procedure and bolster the methodological approach. In 2018, we worked with other stakeholders to successfully develop specific product calculation rules for metal plates and organizational calculation rules for copper production. The organizational calculation rules for copper production were further adapted to the latest developments and adopted by the Technical Advisory Board in February 2024. We continue to use our experience to improve the environmental performance of our company and our products.

In Hamburg since 2003, we have been a member of the Environmental Partnership and a member of the Partnership for Air Quality and Low-Emission Mobility, which is coordinated by the city of Hamburg. The goal of the latter partnership is to reduce nitrogen dioxide emissions, which are caused by transport in particular. So in 2016, we also joined the German Mobil.Pro.Fit.® model project in collaboration with the B.A.U.M. e. V. environmental organization, which has led to different measures for low-emission mobility. For instance, bike boxes with locks were provided for employees at nearby train stations and a bike rental station was set up in front of a plant entrance. We have sponsored the JobRad bicycle leasing program at the site since 2021.

Since 2015, Aurubis has successfully participated in the Carbon Disclosure Project (CDP), which surveys companies about risks and opportunities related to the climate, as well as about CO_2-reduction potential. Aurubis' ambitions were awarded a B in 2024.

2021 was the first year we took part in the CDP Water Security questionnaire, which deals with current and future water-related risks and opportunities. Initial participation involved an unassessed basic version of the questionnaire, and since 2022 completing the full version includes a subsequent assessment by the CDP. As a result, Aurubis' ambitions were again rated a B in 2024.

Targets and successes in environmental protection

When determining the targets as part of our updated Sustainability Strategy, we provided for the company's transformation from a copper to a multimetal producer. Our specific reduction targets and the associated reporting of specific emissions have been solely based on our multimetal indicator — the copper equivalent — since last year.

The calculation is based on an approach that has already been established at the European level within the framework of an EU project on the life cycle assessment (environmental footprint) of organizations and products, the Organisation Environmental Footprint and the Product Environmental Footprint. The copper equivalent describes all the metals Aurubis produces. It standardizes the entirety of our metal production using a weighting factor based on the respective average metal prices. The observation period for the relevant metals ranged from seven to nine years. To prevent the influence of value fluctuations, the average prices used for the metals are fixed for the entire target time frame of the Sustainability Strategy. The calculation method was verified by external auditors in 2021.

Fig. 1.5: Our environmental and climate targets

Noise

» **Target: Reducing noise emissions, especially in new technical projects**

Nature conservation & biodiversity

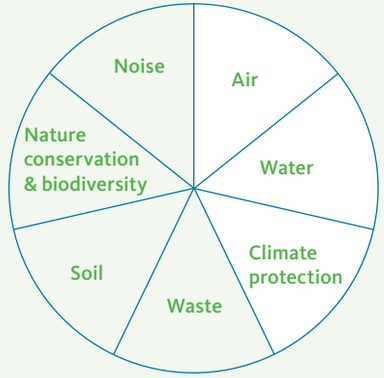
» **Target: Improving nature conservation at the production sites**

› Example: Participation in the NABU project UnternehmensNatur in Hamburg

Soil

» **Target: Reducing input of harmful substances into soil**

› Example: Extensive paving of plant premises in Lünen



Waste

» **Target: Increasing recycling rates**

› Example: Stronger marketing of fayalite in Pirdop

Targets of the 2030 Sustainability Strategy

Air

» **Target: Reducing specific dust emissions in multimetal production by 15 % by 2030 compared to 2018**
35 % reduction achieved in 2024[1]

› Example: Reducing fugitive emissions

Water

» **Target: Reducing specific metal emissions to water in multimetal production by 25 % by 2030 compared to 2018**
18 % reduction achieved in 2024[1]

› Example: Optimizing existing water treatment facilities

Climate protection

» **Target: Reducing absolute Scope 1 and Scope 2 emissions by 50 % compared to 2018**
30 % reduction achieved in 2024[1]

› Example: Implementing decarbonization projects

» **Target: Reducing specific Scope 3 emissions by 24 % compared to 2018[2]**

[1] The Aurubis sites in Beerse and Berango have been included since 2020.
[2] Data for Scope 3 emissions is not yet available for calendar year 2024 and will follow at a later date as part of Aurubis reporting.

Our environmental and climate targets as part of the 2030 Group Strategy

Within the scope of the 2030 Sustainability Strategy, we have set Group-wide targets in environmental and climate protection and defined concrete targets for the individual sites. The effectiveness of these targets and measures is reviewed continuously.

In 2024, dust emissions in multimetal production per ton of copper equivalent output were reduced by 35 % compared to 2018 (target: -15 %). The RDE (Reducing Diffuse Emissions) project with a total investment of about € 85 million so far has particularly contributed to this success *In focus: Our flagship projects in environmental protection*. Our goal now is to maintain this low emissions level in the future as well, and to continue improving through technical measures like the expansion of RDE.

In 2024, metal emissions to water per ton of copper equivalent in multimetal production were reduced by 18 % compared to 2018 (target: -25 %). After falling below the target for the first time last year, and while current numbers continue to be low, the target could not be achieved this year. Contributing factors include modernization work on a wastewater treatment plant, which temporarily reduced the plant's efficiency, as well as a planned maintenance shutdown at the Hamburg site. We plan to consistently meet our 25 % reduction target by 2030 by implementing new projects and making improvements to existing facilities.

Scope 1 and Scope 2 emissions were reduced by 30 % in 2024 compared to 2018. This positive trend was largely driven by the realization of energy efficiency projects and the increasing integration of green electricity in the electricity sourcing strategy. The planned maintenance shutdown at the Hamburg site and improved data availability delivered additional positive effects.

Data for Scope 3 emissions is not yet available for calendar year 2024; it will follow at a later date as part of Aurubis reporting.

Fig. 1.6: Specific dust emissions in Aurubis Group multimetal production

in g/t of copper equivalent

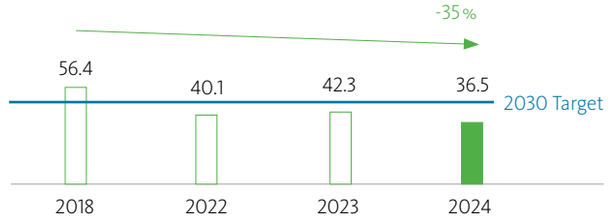


Fig. 1.7: Metal emissions to water in Aurubis Group multimetal production

in g/t of copper equivalent

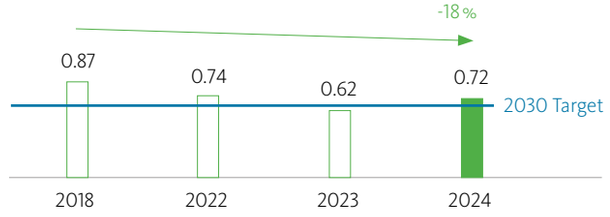
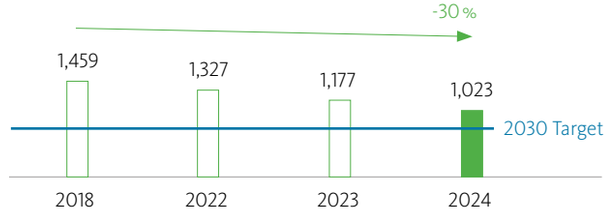


Fig. 1.8: Absolute Scope 1 and Scope 2 emissions in the Aurubis Group

in t CO_2



Biodiversity

We are actively involved in creating and maintaining good conditions for species conservation and biodiversity in our plants and their surroundings. It is clear to us that protecting biological diversity is one of the greatest environmental challenges of our time, which is why we adopted it as an additional dimension in our sustainable development. It has been part of our environmental targets for a number of years and was included in our Company Guidelines on Environmental Protection at the start of 2023. We want to further expand and systematize our commitment in this area and our biodiversity management.

The aspect of biodiversity was also inspected by governmental authorities as part of authorization procedures with environmental compatibility tests. In cases where impacts on biodiversity were anticipated, we applied the required offsetting measures. Furthermore, we conserve the habitats of animals and plants in the areas surrounding our sites with our extensive water treatment, air emission reduction, and waste treatment methods.

Wherever possible, we maintain or expand green areas on the grounds of every plant: We take part in the Hamburg initiative UnternehmensNatur to promote biodiversity at our site, for instance. Due to long-time industrial use, however, there may be soil contamination typical for industrial areas, which we work to prevent from mobilizing and spreading. We commissioned a new sewer line at the Olen site to protect the nature conservation area Olens Broek in late 2015. When we have to expand the usable area on any plant premises, we choose areas that naturally have limited biodiversity.

Additional measures are currently being devised to protect and reinforce biodiversity as well. For example, a fayalite landfill that was closed at the Pirdop site in late 2018 was ecologically restored. At the Hamburg site, a pilot project to install a green facade was implemented to promote biodiversity and improve the ambient air. Measures to enhance urban biodiversity were also developed in coordination with the environmental protection agency and NABU.

Generally the options for promoting biodiversity are assessed for every construction or other type of project.

Fig. 1.9: Conservation areas in close proximity to copper production sites

	Name	Type	Distance	Direction
Hamburg (DE)	Hamburger Unterelbe	Natura 2000	200–600 m	Southeast
	Holzhafen	Natura 2000	600–1,000 m	East
	Heuckenlock/Schweenssand	Natura 2000	3,600 m	South
Pirdop (BG)	Tsentralen Balkan — bufer (nature conservation area)	Natura 2000	approx. 1,000 m	North
	Tsentralen Balkan — bufer (bird conservation area)	Natura 2000	approx. 1,700 m approx. 2,300 m	North East
	Sredna Gora[1]	Natura 2000	approx. 2,300 m	South
Lünen (DE)	In den Kämpen, Im Mersche, and Langerner Hufeisen	Natura 2000	<2,000 m	Northeast
	Lippeaue	Natura 2000	<5,000 m	Northwest
	Lippe-Unna, Hamm, Soest, Warendorf	Natura 2000	<2,500 m	Northwest
Olen (BE)	Valleigebied van de Kleine Nete met brongebieden, moerassen en heiden	Natura 2000	approx. 1,000 m	North
	De Vallei van de Kleine Nete benedenstrooms	VEN[2]	approx. 1,000 m	North
	Het Olensbroek en Langendonk	VEN[2]	approx. 1,000 m	North
Beerse (BE)	Eksterheide	Natura 2000	approx. 500 m	West
	Duivelskuil	Natura 2000	approx. 750 m	Southwest
	De Pomp-Poelberg	Natura 2000	approx. 1,000 m	Northwest
Berango (ES)	Ría de Mundaka-Cabo de Ogoño Marine Area	Natura 2000	approx. 3,500 m	North
	Ría del Barbadún	Natura 2000	approx. 10,000 m	Southwest

[1] The nature conservation area Sredna Gora is home to the Dushantsi Reservoir, which was created at the same time the copper smelter was constructed in the 1950s to supply industrial water to the Pirdop plant and is operated by Aurubis.
[2] VEN: Vlaams Ecologisch Netwerk (Flemisch Ecological Network).

Energy, climate protection, and decarbonization

Our climate, our contribution

With the Green Deal, the EU has set an ambitious target for 2050: a resilient economy and society that achieve carbon neutrality through high innovative strength and competitiveness. We confirm that this aligns with our targets as evidenced by our commitment to the Science Based Targets initiative. In 2021, the Science Based Targets initiative (SBTi) validated Aurubis AG's CO_2-reduction targets, thus confirming that our targets contribute to limiting global warming to 1.5°C pursuant to the Paris Climate Agreement. We have set out to reduce the absolute Scope 1 and Scope 2 emissions, meaning CO_2 emissions generated by burning fuels in internal facilities and those related to purchased energy, by 50 % by 2030 compared to reference year 2018. We want to reduce Scope 3 emissions, which arise in the upstream and downstream stages of the value chain, by 24 % per ton of copper cathodes during the same period as well. To integrate our reduction targets into project planning, Aurubis reviews the achievement of the Group-wide sustainability targets, which include CO_2-reduction targets, during project assessments.

We will continue implementing our detailed roadmap to achieve our climate goals. Regarding Scope 1 and Scope 2 emissions, this includes technical measures like decarbonizing plant facilities by using green hydrogen or biogenic substitutes instead of fossil fuels and electrifying our production. Utilizing industrial waste heat from our production process, further increasing energy efficiency, generating renewable energies, and expanding the purchase of green electricity are further steps we are taking to enhance our environmental performance. Since the majority of our Scope 3 emissions originate from the mining companies that supply our copper concentrates, most emission reduction strategies focus on collaborating with supply chain partners and enhancing recycling efforts.

We regularly communicate with our main suppliers about decarbonization to monitor their progress. Consequently, we have been able to verify that the mining companies are increasingly prioritizing the use of renewable energies and electrifying their processes. We aspire to make our production carbon-neutral before 2050.

Our life cycle assessments indicate that we are on the right track, as today we are already producing many metals with less than half the global average carbon footprint. The challenge inherent in decarbonization is that no one single technology will get us there. A diversified approach is needed, especially since our sites have very different requirements. Our path to carbon neutrality is multifaceted.

Management approach

The individual production steps in the Aurubis value chain are very energy intensive overall. Accordingly, the effective and efficient use of energy is an issue of ecological and economic responsibility. The energy usage is the main source of CO_2 emissions in the Group. Taking the entire value chain into consideration, over half of the CO_2 emissions are upstream and downstream, i.e., they originate from our suppliers, customers, and service providers (Scope 3 emissions). Most of the Scope 3 emissions originate from the activities of the mining companies from which we source ore concentrates.

At the same time, the products we manufacture contribute to reducing CO_2 emissions in our society because they play an important role in renewable energies, energy efficiency applications, and electric vehicles. Electric cars contain nearly four times more copper than vehicles with conventional combustion engines, and building and connecting an offshore wind turbine to the energy grid requires up to 30 t of copper.

By identifying climate-related opportunities and risks and deriving related measures, we create a direct link between our risk management and our energy, climate and decarbonization strategy. In doing so, we consider current and pending legal requirements, technological advancements, and compliance-related, reputational and physical risks.

The development and implementation of the Group-wide energy and climate strategy and the corresponding coordination of the targets and measures are the central responsibility of the head of Corporate Energy & Climate Affairs, who reports directly to the Executive Board. The corporate division coordinates the development of the energy management and monitoring systems across the Group, providing for a uniform approach and facilitating the exchange of expertise regarding best practice examples — for instance in the form of an energy efficiency network for the German Aurubis sites' energy management officers and a regular international Aurubis workshop. Topics include completed and planned energy efficiency projects, results of energy audits, the current legal situation, and aid programs and implementation assistance related to new requirements.

Aurubis holds a leading position in energy efficiency. However, as we increase productivity and efficiency, we are also reaching our technical limits. Past efficiency enhancements cannot serve as a blueprint for future development, as each successive gain in energy efficiency makes it more difficult to further optimize energy demand. Because there are technological limits to reducing energy consumption and emissions, a continued high level of capital expenditure leads to only marginal improvements compared to past years.

An overview of our energy, climate protection, and decarbonization efforts is available in:
Our commitment to the climate

In order to control energy consumption optimally using energy performance KPIs and identify additional energy savings potential with the goal of continuous improvement, all sites are certified in accordance with DIN EN ISO 50001:2018.

In fiscal year 2023/24, the Group Decarbonization department was created within the Corporate Sustainability and External Affairs corporate function. It is responsible for the ongoing development of the decarbonization strategy, targets and roadmap, for coordinating the site-specific roadmaps, and for managing their implementation. To ensure a uniform approach, create synergies, and identify best practice measures, new formats were established, such as an annual Group Decarbonization Workshop and multiple cross-site working groups for exchanging experience on decarbonizing comparable processes and facilities, which meet two to four times per year. Group-wide and site-specific progress is overseen in strategic committees and meetings that take place at regular intervals.

An overview of our energy, climate protection, and decarbonization efforts is available in *Our commitment to the climate*.

In focus: Our flagship projects in environmental protection

Producing with new, innovative environmental protection technologies

We are a leader in reducing our environmental impact on air, water and soil in multimetal production. We have a long tradition of developing new and innovative environmental protection technologies.

An € 85 million filter system in primary copper production (RDE) has been reducing diffuse emissions at the Aurubis Hamburg site since 2021. The project involved closing roof openings on the building housing the primary smelter and connecting a new, high-performance filter system. New technologies are being used and combined in revolutionary ways for RDE. The specially developed, needs-based control of the ridge turrets uses a level of digitalization that is unique for environmental protection in the metals industry thus far, and ensures efficient implementation with the high volumes of exhaust air. This has already resulted in a 40 % reduction in the diffuse emissions discharged from primary copper production.

We will now be expanding the existing facility with an investment of about € 30 million. By doubling its capacity in this way, we are once again significantly boosting the facility's efficiency to 80 %. Commissioning is scheduled for 2025/26.

This project is further proof that modern urban development and copper production just a few kilometers from downtown Hamburg can sustainably coexist.

Improved slag treatment in Pirdop

Aurubis is investing around € 46 million in improving the treatment of slag from copper refining at the site in Bulgaria. The new process involves cooling slags in pots instead of in pits as before. Although the previous process is an established practice in the industry, our innovative method is setting new standards in environmental protection and clearly surpasses the previous benchmark. With this improvement, we are enhancing on-site work safety and significantly reducing the diffuse emissions generated during slag processing. The new process also enables the recovery of more copper. This investment represents a key contribution to achieving our ambitious sustainability targets. At the same time, it highlights our dedication to continuously improving our efforts to mitigate climate change and protect the environment.

View of the new exhaust system at the Hamburg site close to the city

Our commitment to the climate

Solar energy for copper production
As part of our long-term Metals for Progress: Driving Sustainable Growth company strategy, we broke ground for two additional photovoltaic parks at our Pirdop site in Bulgaria in April 2024. An additional expansion has already been approved. This expansion of the on-site solar park, operational since 2021, constitutes another strategic investment in decarbonizing our production processes, and is slated for completion in 2024/25.

With all four photovoltaic facilities, Aurubis is considerably increasing its captive electricity generation capacities and will be able to cover about 15 % of the site's electricity needs with green energy in the future. The roughly 55,000 MWh of electricity that will be generated annually is equivalent to the demand of a city with 25,000 inhabitants. This allows us to prevent around 25,000 t of CO_2 emissions per year. The investment in Pirdop not only makes Aurubis more resistant to price fluctuations on the energy market; it is also a key step towards carbon-neutral production.

New technology for decarbonization
In spring 2021, we became the first company in the copper industry to test the use of hydrogen on an industrial scale at our Hamburg site. Here we used a gaseous mixture of hydrogen and nitrogen in place of natural gas to pole copper melt in the anode furnace during production. Poling is a metallurgical purification process or a reduction process in melted metal.

The pilot project, which was awarded first prize in the 2021 Responsible Care competition held by the German Chemical Industry Association (VCI) at the national and state levels, went according to plan and tested how the facility reacted to the introduction of hydrogen. We were able to get this production step up and running smoothly. The procedural results of this test series have encouraged us to pursue additional activities related to hydrogen. In the reporting year, we were one of the first copper smelters worldwide to invest in hydrogen-ready anode furnaces.

With the investment of about € 40 million, Aurubis is taking another important step in the transformation towards carbon neutrality with the new technology that provides a savings potential of around 5,000 t of CO_2 per year in Hamburg when only hydrogen is used. The conversion in the Hamburg plant was carried out as part of the plant's routine maintenance shutdown in spring 2024. In addition to decarbonizing production, the new furnaces will improve process flexibility as well. Compared to the previous equipment, the new furnace technology enables the processing of complex metal-bearing copper concentrates. This will help Aurubis in Germany extract additional valuable raw materials even more efficiently in the future to satisfy rising demand coming from electric vehicles, for example.

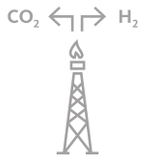
Although at the current time there simply not enough green hydrogen to cover German industry's huge demand at internationally competitive prices, with this step, we are leading the way and showing that we are ready.

The new anode furnaces are already further decarbonizing Aurubis' production even before enough hydrogen comes on the market, as they work more efficiently and consume about 30 % less natural gas, for a potential savings of nearly 1,200 t of CO_2 per year.

Along with hydrogen, ammonia can also contribute to the decarbonization of industry. Ammonia is not just an ideal hydrogen carrier; it can also be directly used as a fuel. Furthermore, ammonia is much easier to transport over longer distances than hydrogen. We started a pioneering test series on the use of blue ammonia in copper rod production at the Hamburg site. When blue hydrogen is produced, the resulting carbon dioxide is captured and stored underground using the carbon capture and storage (CCS) technique. The blue ammonia used for testing was supplied as part of the deepened hydrogen cooperation between Germany and the United Arab Emirates. The target that Aurubis had envisioned of directly using ammonia as fuel proved unfeasible in view of environmental regulations and high product quality standards. As a result, Aurubis does not plan to pursue the direct use of ammonia as a fuel in this application. In addition to its use as a fuel, ammonia has the ideal properties for serving as a hydrogen carrier. The technology used to recover the hydrogen from the ammonia by splitting the gas back into hydrogen and nitrogen is called a cracker. The feasibility of constructing an ammonia cracker for hydrogen was evaluated. Technical feasibility was confirmed, though the project is currently not economically viable.

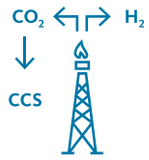
Responsible Care – ein Beitrag zur Nachhaltigkeitsinitiative Chemie[3]

Gray hydrogen



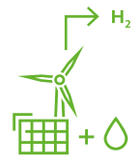
Recovered with the help of fossil energy sources. This creates CO_2.

Blue hydrogen



Recovered with the help of fossil energy sources, but the CO_2 is captured and stored (CCS = carbon capture and storage) or further processed as a raw material.

Green hydrogen

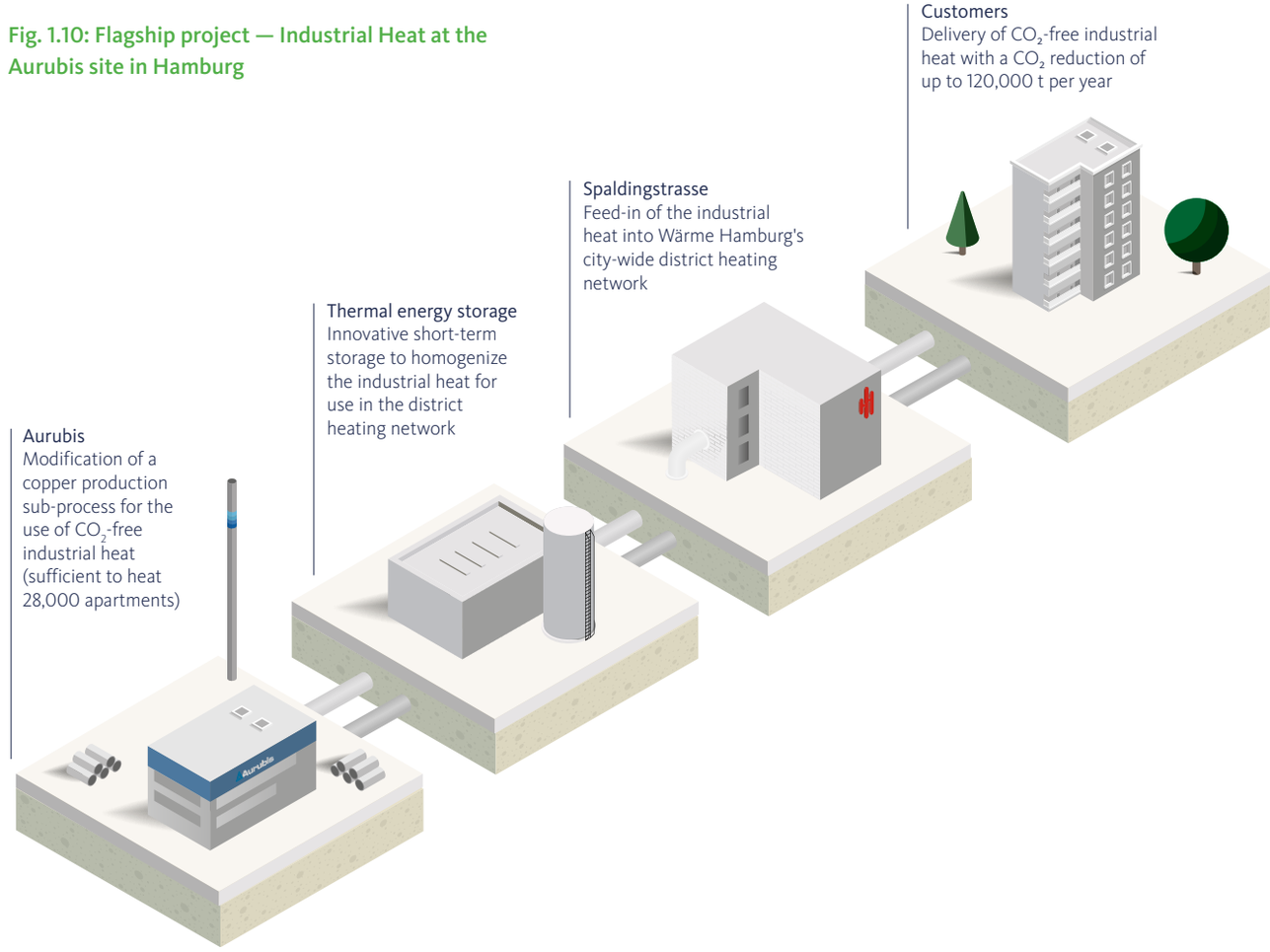


Produced exclusively with renewable energies, so without CO_2 emissions.

Industrial Heat 2.0:
Carbon-free heat from Hamburg

The first phase of the project, which has been supplying carbon-free industrial heat from the Hamburg plant since 2018, facilitates an energy-efficient heat supply for the eastern part of the HafenCity. At the same time, 12 million m³ less cooling water and Elbe River water is used each year, as the industrial heat is now used for heating purposes. But there was room for more: We began with the expansion of the Industrial Heat project in Hamburg at the start of 2022. By converting a sub-process in copper production at the Aurubis plant in Hamburg, up to 20,000 additional households will be heated each year in cooperation with the Hamburger Energiewerken energy utility starting with the 2024/25 heating period, reducing CO_2 emissions in the city by up to 100,000 t. The Industrial Heat flagship project at the Aurubis site in Hamburg has garnered a great deal of attention nationally and internationally. The second stage of this highly complex project was implemented in 2024 during the routine, scheduled maintenance shutdown at the Hamburg plant and is the largest project of this kind in Germany. The symbolic launch of the industrial heat supply took place on January 9, 2025.

Fig. 1.10: Flagship project — Industrial Heat at the Aurubis site in Hamburg



Expanding our pioneering role in recycling

The economy, industry and society are facing enormous challenges. As a leading multimetal company, we are committed to being part of the solution — because a sustainable future is impossible without metals.

When it comes to recycling, we are continuing our focus on growth and making significant investments with our updated Metals for Progress: Driving Sustainable Growth strategy, making a key contribution to the circular economy in Europe as well as taking a further step along the path towards becoming the most efficient and sustainable integrated smelter network in the world.

The site at the beginning of December 2024

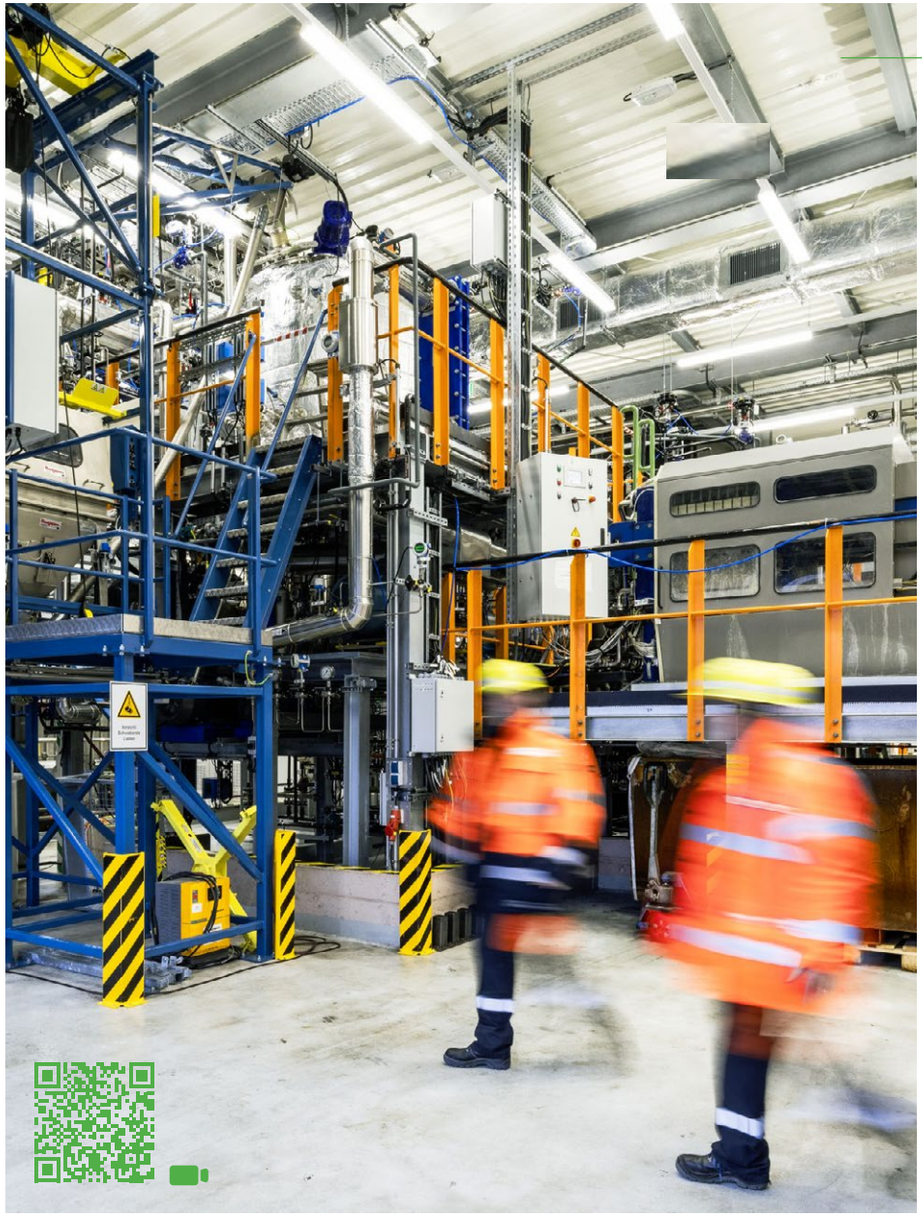
Insights and impressions

Ribbon Cutting Ceremony wrap-up

Largest multimetal recycling plant in the United States — Aurubis Richmond, US

Aurubis is blazing a trail with its new recycling plant in the US state of Georgia: With the signing of a supply contract for a second plant module in 2023, Aurubis anticipates a total investment of around € 740 million for both project stages in the first secondary smelter specializing in multimetal recycling in the US. The additional equipment will increase the capacity of the metal recycling plant in Richmond, currently under construction, from an annual 90,000 t to 180,000 t of complex metal scrap materials per year. The plant is a key contribution to Aurubis' commitment to the circular economy. Groundbreaking for Aurubis Richmond took place mid-2022 and after two years of construction, the plant was inaugurated on September 20, 2024.

Following the ribbon cutting, the current focus is on the next major milestone, when the facilities in Module 1 are commissioned step by step. Smelting operations will gradually come online in a ramp-up curve.



Inside the demonstration plant, engineered in-house, at the Hamburg site.

Growth area of battery recycling

The pilot plant, in operation at the Hamburg site since March 2022, has yielded successful findings. The process Aurubis engineered to recover valuable raw materials from end-of-life lithium-ion batteries from electric vehicles and waste from battery production allows us to close the loop and return these metals to battery production.

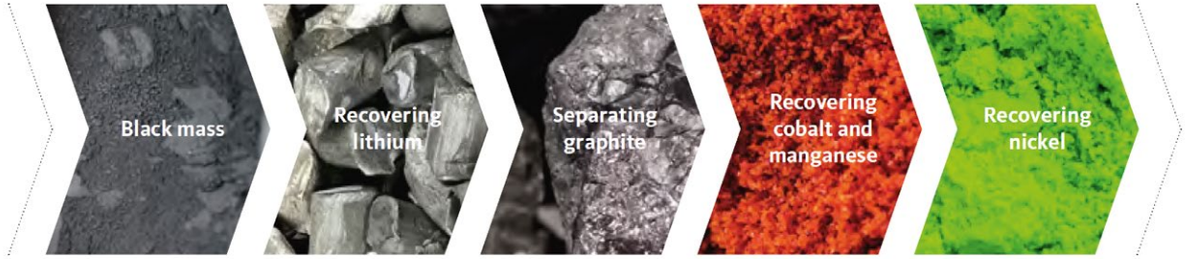
During the pilot phase, we succeeded in fairly rapidly devising a unique technology that has since been patented. An innovative technique that is exceptionally effective: Within our smelter network, we recover about 95 % of the battery metals from black mass — including the light metal lithium, which is highly significant from an economic perspective and concentrated in a limited number of mining regions worldwide. The process engineered by Aurubis has a high metal recovery rate that exceeds current EU regulations and recovery targets for individual metals from lithium-ion batteries.

Aurubis is now taking the next step and building a demonstration plant. In the 2024 calendar year, the plant, which will be used to test a subprocess using industrial-scale equipment, was built and the first campaigns to extract the metals from black mass were set up. The main unit in the demonstration plant is larger than the pilot plant by a factor of 50 and will deliver additional findings on operating on an industrial scale. Along with further expanding its expertise in metallurgy, Aurubis has entered into additional partnerships, such as with the Talga Group Ltd., an Australian battery material and technology company. The two companies will work closely on this development project to achieve Aurubis' objective of expanding the use of Talga technology to all Aurubis graphite products. Initial test series have delivered promising results.

We continue working on creating the technical building blocks for a flexible market entry strategy to address the technical and economic requirements of this future market.

Recovering metals from black mass

Aurubis recovers valuable metals from the black mass extracted from recycled electric vehicle batteries.



Recycling plant for nickel and copper in Belgium

At the Olen site, we completed BOB (Bleed Treatment Olen Beerse), an around € 85 million investment in a strategic project that adds an energy-efficient and effective process step for recovering copper and nickel — an essential metal for lithium-ion batteries and as such an important building block for the e-mobility megatrend. The new facility in Belgium is another excellent example of how Aurubis is realizing synergies in its smelter network and making an important contribution to the circular economy in Europe. The plant was commissioned in December 2024.

The new facility under construction in early November 2024

Innovative recycling of metals from residues

We celebrated the opening of the Advanced Sludge Processing by Aurubis (ASPA) facility at our Aurubis Beerse site (Belgium) at the beginning of September 2024. In the future, the hydrometallurgical ASPA facility will process anode sludge, a valuable intermediate product from electrolytic copper refining produced at the recycling sites in Beerse and Lünen. The new process offers two significant advantages: faster extraction of precious metals and the complete recovery of lead and tin from anode slime. ASPA bolsters recycling activities in the company and generates significant added value for the circular economy. Construction on the new facility began in December 2022 and it was inaugurated in September 2024. This investment of around € 33 million is Aurubis' clear commitment to advancing the Beerse site and underscores our position as one of the most efficient and sustainable integrated smelter networks in the world.

Taking the circular economy to new heights

In December 2022, we announced another investment in securing and strengthening Aurubis' core business — Complex Recycling Hamburg (CRH). With an investment volume of around € 190 million, Aurubis will be able to process around 30,000 t of additional recycling materials and internal, complex smelter intermediary products on a larger scale, making a valuable contribution to the circular economy of metals in Europe. The investment in the Hamburg site will keep significantly more added value in the company in the future and generate additional metallurgical capacities. Commissioning is scheduled to take place in the 2025/26 fiscal year.

Our raw materials — Responsibility in the supply chain

We take responsibility for sustainability standards, and not just in our own production processes and in our own actions, but in our supply chain as well. This is all the more important because we source raw materials from around the world. The extraction of the raw materials we process can have a direct or indirect impact on human rights and ecological aspects. Our suppliers' raw material extraction and production processes can affect biological diversity, the climate, or the conservation of air, water and soil quality, for example. Other environmental aspects such as the handling of mining waste and the use of energy and water are relevant as well. As a result, we systematically analyze the risks of our suppliers and supplier countries.

In addition to copper concentrates, we use copper scrap and various types of organic and inorganic metal-bearing recycling raw materials, industrial residues, and bought-in metallurgical intermediates as feed material. Most of the copper scrap and metal-bearing recycling raw materials for our four secondary smelters in Lünen (Germany), Olen and Beerse (both in Belgium), and Berango (Spain) are sourced on the European and North American markets. Furthermore, we use copper scrap with high copper contents for cooling purposes in both of our primary smelters in Hamburg (Germany) and Pirdop (Bulgaria). Unlike primary raw materials, secondary raw materials are largely purchased on the basis of short-term supply contracts, which is customary for the market.

To close the value chain for copper and other metals, we place a high priority on the closing-the-loop approach. The focus of this approach is on materials such as production waste and residues that accumulate along the copper value chain in production, for example with our customers.

To fulfill our due diligence obligations with regard to all of our material topics in the supply chain area, we implemented a Business Partner Screening system based on the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD DDG), as well as the German Supply Chain Due Diligence Act (LkSG). In our risk analysis, we consider both abstract country and sector risks and the concrete risks actually associated with the business activities of our business partners. The central issues here include anti-corruption, upholding human rights, occupational safety, and environmental and climate protection, as well as responsible sourcing strategies. The results of a media search and assessments from an external rating provider are also included in the screening. In the 2023/24 fiscal year, all procurement processes were revised with a particular focus on supply chain due diligence to drive continuous improvement. The updated Responsible Sourcing Policy entered into force on September 1, 2024.

The Aurubis Business Partner Code of Conduct outlines our environmental, social and governance standards for our business partners. Compliance with these standards is the most important requirement for our successful collaboration with business partners. To obtain contractual reassurance from our suppliers, we have also adopted human rights, environmental and security clauses in 100 % of our long-term primary raw material contracts.

Aurubis' policy statement on compliance with human rights and environmental obligations pursuant to Section 6(2) of the German Supply Chain Act (LkSG) summarizes Aurubis' human rights strategy. It describes Aurubis' processes for adhering to legal requirements, outlining the human rights and environmental risks identified as part of an annual risk analysis, and the resulting expectations for our employees and suppliers.

We expect our business partners to report substantiated suspicions of human rights violations, for example using our Compliance Portal, also referred to as the whistleblowing system. Complaints about sites that are taking part in the Copper Mark process can also be submitted through the Copper Mark's grievance mechanism.

https://secure.ethicspoint.eu/domain/media/en/gui/107757/index.html

and

https://www.aurubis.com/en/responsibility/whistleblower-system

Fig. 1.11: Origin of concentrates and throughput
for the Aurubis Group in 2023/24,[1] in %

[1] Percentages have been rounded.

Fig. 1.12: Origin of recycling materials and throughput
for the Aurubis Group in 2023/24,[1] in %

[1] Percentages have been rounded.

Regulations and standards for responsible metal production

When it comes to carrying out human rights and environmental due diligence, Aurubis is subject to the requirements of the German Supply Chain Act (LkSG). Pursuant to the LkSG, Aurubis conducts a systematic risk analysis in the supply chain to identify, prevent and mitigate risks related to the destruction of natural habitats due to environmental pollution, prohibited production, use and/or disposal of mercury (Minamata Convention), prohibited production and/or use of substances within the scope of the Stockholm Convention (POP), and prohibited import/export of hazardous waste under the Basel Convention. Incidents that are potentially relevant for the LkSG are included in the subject-specific reporting to the Federal Office for Economic Affairs and Export Control (BAFA). Furthermore, to monitor human rights risk management in accordance with the stipulations of the LkSG in fiscal year 2022/23, we set up two committees that fulfill the role of human rights officers in the business sector and in the supply chain. The Corporate Sustainability division is represented in both committees and functions as an interface.

We have participated in the United Nations Global Compact since 2014 and are committed to working towards implementing its ten principles related to human rights, labor standards, the environment, and anti-corruption. We have pledged to comply with the OECD Due Diligence Guidelines to promote responsible supply chains. As part of the Copper Mark certification process at our sites in Hamburg, Lünen, Stolberg (all in Germany), Olen, Beerse (both in Belgium), and Pirdop (Bulgaria), we underwent audits in accordance with the Copper Mark criteria on human rights and labor and social standards as well as responsible sourcing practices. This audit verified our human rights approach to our business activities and in the supply chain. The plant-specific audits sometimes generate suggestions and plans for improvement that Aurubis AG has taken as inspiration and guidance for increasing performance regarding the 33 Copper Mark sustainability criteria. The Deutsche Giessdraht Emmerich site will commit to the Copper Mark in the 2024/25 fiscal year and start the certification process.

In February 2023, Aurubis was one of the first companies in the world to commit to the new Copper Mark Chain of Custody standard. It defines the requirements for certified copper-containing products in the supply chain and is the first standard to cover the entire supply chain from mine to semi-fabricator. The Copper Mark published the standard, a more detailed version of the previous guidelines, at the beginning of 2022.

Since 2013, Aurubis' gold production has been annually certified as conflict-free according to the standards of the London Bullion Market Association (LBMA). This certificate verifies that we carry out our due diligence processes in accordance with the OECD standards. This certification option has been available for silver since 2019, and Aurubis' silver production has been certified as conflict-free since then as well. Tin production at our Beerse and Berango sites has been certified as conflict-free in accordance with the Responsible Minerals Assurance Process (RMAP) standard since 2015. This standard is also based on the OECD guidelines for conflict minerals.

Risks and opportunities

Risk management in the Aurubis Group (risk management system)

Our objective in risk management is to manage and monitor the risks associated with our business with the help of a risk management system (RMS) tailored to our activities. Identifying and monitoring risk development early on is of major importance. Furthermore, we strive to limit negative effects on earnings caused by risks by implementing appropriate and economically sound measures.

Risk management is an integral component of the centralized and decentralized planning, management and monitoring processes and covers all of the Aurubis Group's main sites, business sectors, and central functions. The planning and management system, risk reporting, open communication culture, and risk reviews at the sites create risk awareness and transparency with regard to our risk situation and promote our risk culture.

Risk management officers have been appointed for all sites, business sectors, and central functions, and they form a network within the Group. The Group headquarters manages the network. Corporate Risk Management has regular discussions with Corporate Environmental Protection, Corporate Sustainability, and Corporate Energy & Climate Affairs, for example to report on new legislative proposals, broadly identify risks related to them, and prepare for early risk management as needed. These discussions also promote the risk culture and risk awareness in the Aurubis Group. Alongside the risk management officers, the Aurubis Group has established a Group risk management function. The RMS is documented in a corporate policy.

Standard risk reporting takes place bottom-up each quarter using a uniform, Group-wide reporting format. The identified risks and risks that exceed a defined threshold are explained within this format. The likelihood of their occurrence and the extent of the damage they could cause are evaluated, and instruments and measures used to manage them are outlined. The risks registered with Group headquarters are assessed, qualitatively aggregated into significant risk clusters by Corporate Risk Management, and reported to the entire Executive Board. The report also establishes the basis for the report to the Audit Committee as well as external risk reporting.

Local risk management and opportunities

Based on the system described above, every site and every centralized function is required to maintain and carry out "local" risk management. For example, the Environmental Protection and Energy & Climate Affairs corporate divisions have codified their own corporate policies that govern the way they handle risks in their specific areas of responsibility — in alignment with the Corporate Risk Management Policy.

Moreover, the environmental risks for all Group sites are regularly analyzed and assessed by external experts. Measures are developed and stipulated to effectively counter possible risks.

Since 2022, risk analysis has also included the areas of biodiversity, water availability, and nature conservation. Opportunities are systematically analyzed as well. The risk assessments of all production sites were updated in 2023. Anytime key findings from these analyses exceed the thresholds mentioned above, they are included in the risk reporting that is submitted to Corporate Risk Management.

One opportunity is the substantial contribution Aurubis is making towards meeting the targets of the European Green Deal. We enable a more efficient use of resources and an increase in recycling in particular. At Aurubis, we produce multiple metals using environmentally compatible methods and play a role in a circular, climate-friendly economy. With the integration of the plants in Beerse and Berango, Aurubis is again reinforcing its recycling capabilities and opportunities. Recycling is crucial for a sustainable society.

Aurubis is committed to the target of becoming carbon-neutral before 2050. In late 2019, we joined the UNGC initiative Business Ambition for 1.5 °C, which requires the Group to set science-based emission-reduction targets and thus to contribute to achieving the 1.5 °C objective from the Paris Climate Agreement. In June 2021, the Science Based Targets initiative (SBTi) validated our CO_2-reduction targets and confirmed our contribution. Our metals are a key component of modern environmental technologies; without our products, an energy transition would not be possible. Aurubis is also taking advantage of the opportunity to continue developing the best available techniques (BAT). In spring 2021, we were the first company in the copper sector to begin exploring the use of hydrogen in our copper smelter in Hamburg with the aim of engineering new innovative environmental protection techniques and reducing emissions even further.

Explanation of risks

The main risks in the risk clusters "Energy and climate," "Sustainability," and "Environmental protection," including the specific measures to control the risks, are explained in the Risk and Opportunity Report in the Annual Report *Annual Report 2023/24*. The climate risks in the Annual Report are categorized as physical and transitory risks, in alignment with the definition given by the TCFD (Task Force on Climate-Related Financial Disclosures). A separate climate risk report drafted in accordance with TCFD recommendations reports on climate risks using generally accepted global warming scenarios and, in particular, on the physical risks at our sites. While we are aware that the TCFD was dissolved following the publication of its status report in October 2023, it is still possible to report in accordance with its recommendations. This demonstrates both our serious commitment to climate protection on the one hand, and our effort to meet the growing demand for information from Annual Report readers regarding our climate risks on the other.

In addition to the financial risks described, there are also non-financial risks that are reported separately in the scope of the Non-Financial Report *Annual Report 2023/24*. In the process, no non-financial risks were identified that were very likely to cause a serious negative impact on employee and environmental matters, on respect for human rights, on the prevention of corruption and bribery, or on social matters. Nevertheless, we feel it is important to deal with non-financial risks even if they are evaluated as non-material according to the strict definition of the German Commercial Code (HGB), and we have developed and implemented related management approaches.

Iron silicate: A versatile and sustainable substitute for primary raw materials

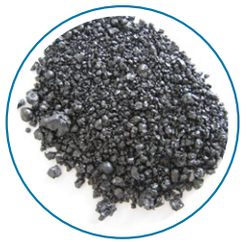
For us, practical resource conservation includes using our raw materials as completely as possible and directing them into the value chain. Our synthetic minerals consisting of iron silicate are one example. They are produced in our metal refining and recycling processes and we specifically adjust and monitor their qualities for applications in the construction sector in particular.

What is iron silicate?
Iron silicate is an industrially produced mineral comparable to natural stone from quarries with the advantage that its production has a much lower impact on ecosystems. Aurubis is a leading global provider of non-ferrous metals and one of the largest copper recyclers worldwide. Iron silicate has different uses, especially in construction as a replacement for primary building materials.

What does iron silicate consist of?
As the name suggests, it mainly consists of the mineral iron silicate, as well as silicates of aluminum and calcium. It may still contain non-ferrous trace metals primarily included in the silicate phases, which are characterized by high binding stability and low leachability.

There are three basic products, depending on the process:

Iron silicate stone, with edges up to 450 mm in length, comparable to igneous rock



Iron silicate granulate, similar to natural volcanic glass, e.g., obsidian

Iron silicate fines, similar to mineral flour

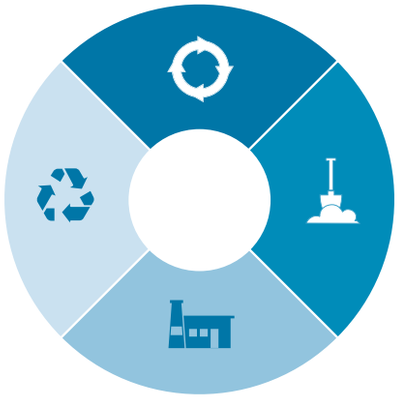
Advantages of iron silicate

- High dry bulk and specific density
- Ideal volume stability
- Optimal surface coarseness
- Very durable
- Very low water absorption
- Very hard
- Dense pore structure
- Very good frost resistance
- Cubic grain shape
- High weather resistance
- No linear deformations

A long-lasting, sustainable replacement for natural building materials

Fig. 1.13: Considerable potential for the circular economy and climate protection

Closing the loop
The use of iron silicate actively contributes to the circular economy and increases resource efficiency.



Waste prevention
Iron silicate is an integral part of copper production; not making use of it would turn a sustainable product into landfill waste.

Saving natural resources
Using iron silicate helps to conserve scarce natural minerals such as gravel, sand and mineral flour.

Industrial symbiosis
Using iron silicate in the construction sector facilitates industrial symbiosis towards greater circularity and climate neutrality.

What is iron silicate used for?

Its technical properties enable iron silicate it to be deployed in a wide range of applications. Fifty years of practical experience and substantial testing demonstrate that it is safe to use throughout its entire life cycle. Iron silicate is registered in compliance with the EU's REACH regulation and is available at a consistent quality throughout the year.

Area		Purpose	Special advantages
Hydraulic engineering		Protecting embankments and the beds of rivers, canals and harbor basins against tidal and wave erosion	» Thinner stone layers and less excavation work » Stability through high dry bulk density, cubic particle shape, and optimal surface texture
Road construction		Anti-frost and gravel-bearing layer	» Very good load-bearing capacity » Frost resistance » Water permeability
Cement		Underlay for paving	» Ready-to-use source of iron » Decreases burning temperature and therefore fuel consumption
Concrete production		Versatile use as a substitute for natural aggregates and Portland cement	» Enhances workability in its fresh state, improves mechanical properties, enhances durability » Enables special types of concrete, e.g., radiation protection concrete, heavyweight concrete
Abrasives		Granulate used for blast cleaning	» Provides a perfect grit for blasting steel, stone and concrete

In addition to these examples, **iron silicate can also be used in asphalt, ceramics, dry mixtures, coal flotation, soil stabilization,** and in many other ways.

Aurubis' commitment to innovation for low-carbon construction materials

We consistently collaborate with EU innovation and research projects to further explore the potential of iron silicate for new applications and to develop construction materials with a reduced carbon footprint.

Project
DuRSAAM

Target: Development of a new generation of construction material/concrete with a low carbon footprint. Application in alkali-activated binders/geopolymers based on iron silicate.

Financing: Horizon 2020

Partners include: Ghent University, Delft University of Technology, Karlsruhe Institute of Technology, ETH Zurich, and 15 industrial partners

Project
SOCRATES

Target: European training network for the valorization of industrial process residues, such as cementitious materials and inorganic polymers.

Financing: Horizon 2020 MSCA-ETN

Partners include: Katholieke Universiteit Leuven, University of Leicester, University of Bonn, TU Bergakademie Freiberg

Project
RECOVER

Target: Upscaling project to produce inorganic polymer building materials from iron silicate, using a modular and mobile upscaling unit. This would result in a lower environmental footprint and would make metallurgical industries an important raw material supplier with integrated zero-waste processes.

Financing: EIT KIC Raw Materials

Partners include: Katholieke Universiteit Leuven, University of Athens, ResourceFull, ZAG

Project
GHRANTE

Target: Development of innovative, recyclable inorganic polymer-based materials, based on slags from non-ferrous metallurgy

Financing: SIM ICON MARES

Partners include: Katholieke Universiteit Leuven, VU Brussels, BRRC, Flamac

A new raw material for construction that saves natural resources: The first projects using iron silicate as a filler in cement have been realized in Bulgaria

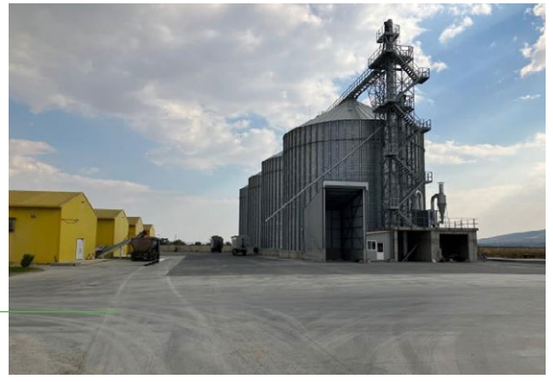
Impressions from a number of constructions sites in Bulgaria that used cement with iron silicate as a filler. With these pilot projects, we are pursuing the goal of offering and establishing a new, resource-efficient and — close to our plants — locally available raw material: iron silicate from our copper production.

Floor slab

of a private house

Primary construction
of a building

Supporting walls



Soil fortification

on a farm

Buildings

A comparison — Life cycle assessments for our metal products

The EU has introduced an ambitious industrial transformation strategy focused on achieving progress on a green and a digital shift. Copper, tin, silver, gold and other metals number among the most important materials for this transition. Almost all green technologies, such as wind turbines, solar energy plants, batteries, network technologies, and hydrogen electrolyzers, require a larger quantity of metals. This means sustainable metal production is growing in importance.

Aurubis assumes responsibility for the global challenges of climate change, environmental protection, and resource conservation. Here our focus includes improving the environmental compatibility of products and promoting sustainability along the entire supply chain. Reliable life cycle assessments help us comprehensively and transparently evaluate the environmental impacts of our products.

We have continued to advance the life cycle assessments of our products. In addition to updating the environmental profiles of our core product, the copper cathode, as well as gold, silver, tin, nickel sulfate, and our continuous cast wire rod, oxygen-free rod (Foxrod) and continuous cast shapes copper products based on 2023 data, we have also completed life cycle assessments for copper bars and profiles along with selenium.

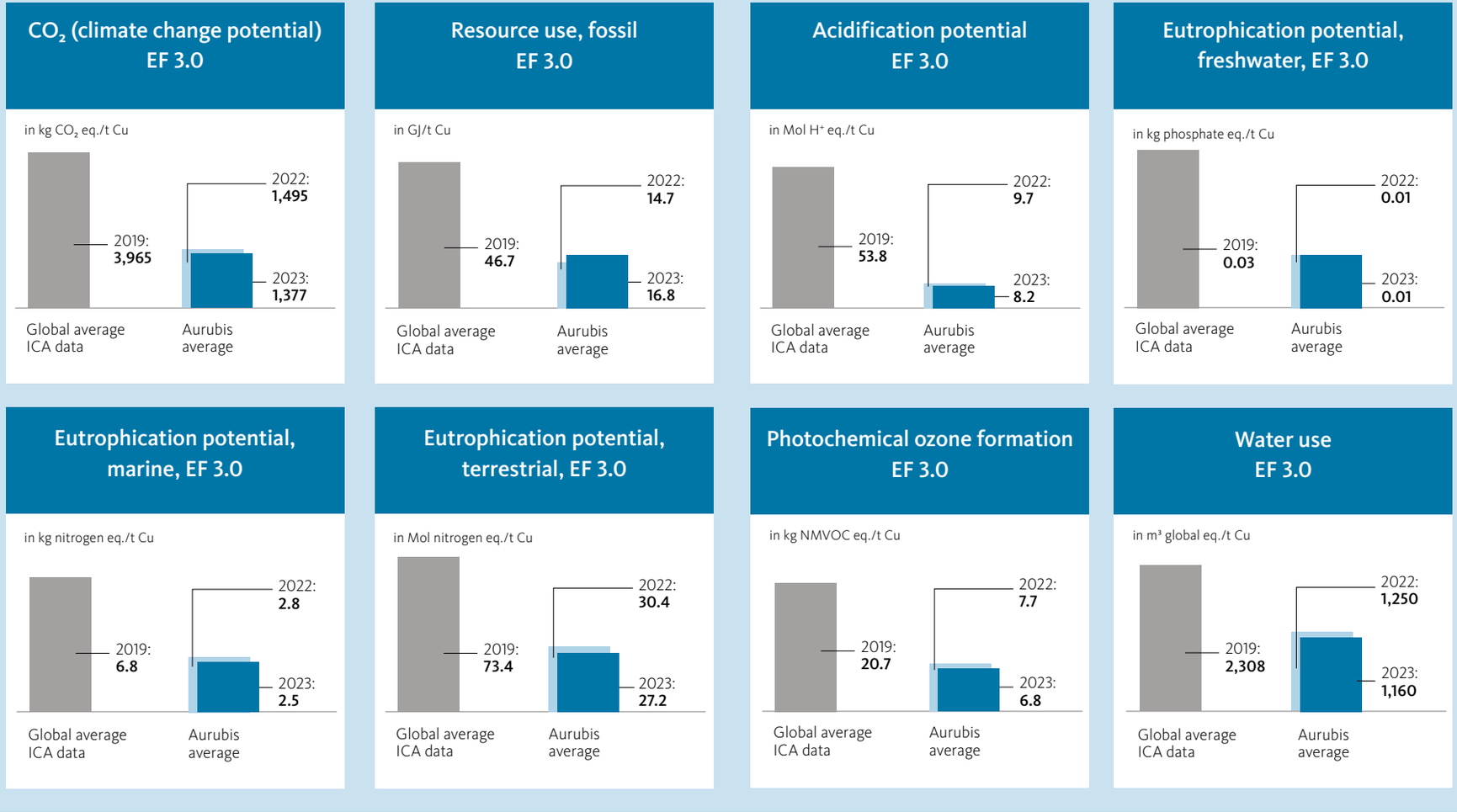
Since 2023, the environmental impacts of Aurubis products have been calculated using only the Environmental Footprint assessment method (EF 3.0) based on 16 impact categories in order to align with the best scientific and industrial reporting practices. The results based on the CML method (Institute of Environmental Sciences at Leiden University in the Netherlands) are no longer in use.

The most important life cycle assessment impact categories:

Impact category	Description
Global warming potential	A measure of greenhouse gas emissions, such as CO_2 and methane. These emissions are causing an increase in the Earth's absorption of radiation emitted by the sun, increasing the greenhouse effect. This can in turn have adverse impacts on ecosystem health, human health, and material welfare.
Eutrophication potential	Eutrophication covers all potential impacts of excessively high levels of macronutrients, the most important of which include nitrogen (N) and phosphorus (P). Nutrient enrichment can cause an undesirable shift in species composition and elevated biomass production in both aquatic and terrestrial ecosystems. In aquatic ecosystems, increased biomass production may lead to depressed oxygen levels because of the additional consumption of oxygen in biomass decomposition.
Acidification potential	A measure of emissions that cause acidifying effects to the environment. The acidification potential is a measure of a molecule's capacity to increase the hydrogen ion (H^+) concentration in the presence of water, thus decreasing the pH value. Potential effects include fish mortality, forest decline, and the deterioration of building materials.
Photochemical ozone formation	A measure of emissions of precursors that contribute to ground level smog formation (mainly ozone), produced by the reaction of VOCs and carbon monoxide in the presence of nitrogen oxides under the influence of UV light. Ground level ozone can be detrimental to human health and ecosystems and may also damage crops.
Resource use, fossil	A measure of the entire quantity of fossil, non-renewable resources (crude oil, natural gas, etc.) that is extracted from the Earth and used for primary energy production.
Water use	Water removal potential (method of available water supply). Based on the inverse value of the difference between water availability per area and water demand per area.

The life cycle assessments include all the activities required for manufacturing the products from the cradle to the plant gates. These include ore mining, smelting and refining, transport, energy consumption, and auxiliary materials. The studies were undertaken in accordance with the 14040 and 14044 ISO standards for life cycle assessments. The impact categories were selected to cover a wide range of relevant environmental impacts and were each determined using a well established scientific approach. The results for all 16 indicators are included in the respective reports on the life cycle assessments. However, it is important to note that the impacts of "abiotic depletion potential" and "toxicity" are neither reliable nor precise enough to be used for metals.

Global average ICA data, Aurubis average[1]



[1] The diagrams show the industry's global average results for reference year 2019 (left bar) and the Aurubis average results for copper cathodes in 2022 and 2023 (right bar).

The environmental profiles of the Aurubis products were tested by TÜV NORD CERT in accordance with the DIN EN ISO 14040:2021 and DIN EN ISO 14044:2021 standards. The findings align with the values and vision represented by the Tomorrow Metals by Aurubis label. The updated life cycle assessment shows that the ecological footprint of Aurubis copper cathodes is more than 50 % lower than the ICA (International Copper Association) average in all relevant impact categories. The ecological footprint of Aurubis copper cathodes considerably decreased again in all the impact categories assessed. In 2023, the CO_2 footprint was around 8 % lower than in 2022. At the same time, the CO_2 footprint is more than 65 % lower than the current global industry average for copper cathodes from the International Copper Association. The CO_2 footprint of our continuous cast wire rod is more than a third below the global average.

The results from all the other products assessed also underscore Aurubis' pioneering role. Our silver and gold CO_2 footprints are both over 50 % below the global industry average. Our recycling practices and the high efficiency of our metal recovery are key to achieving these positive outcomes. In 2023, the recycling content of Aurubis silver and gold was 52 % for silver and 23 % for gold.

The values for tin are even better with a CO_2 footprint at more than 55 % below the global average of the International Tin Association. Aurubis manufactures tin bars entirely from secondary raw materials.

Data sheets and reports on the life cycle assessments of our products are available at:
www.aurubis.com/en/responsibility/environment-energy-and-climate/ecological-footprint-of-our-products

CO_2 FOOTPRINT OF COPPER CATHODES
in kg CO_2 equivalent per t cathode copper

3,965
Global average ICA[1]
(data reference 2019)

1,377
Aurubis copper[2]
(data reference 2023)

CO_2 FOOTPRINT OF TIN
in kg CO_2 equivalent per t tin

6,632
Global average[3]
(data reference 2020)

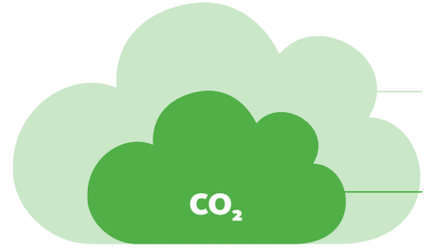
3,000
Aurubis tin[4]
(data reference 2023)

CO_2 FOOTPRINT OF SILVER
in kg CO_2 equivalent per kg silver

448
Global average[5]
(reference 2021)

200
Aurubis silver[6]
(data reference 2023)

CO_2 FOOTPRINT OF GOLD
in kg CO_2 equivalent per kg gold



36,400
Global average[7]
(reference 2019)

15,500
Aurubis gold[6]
(data reference 2023)

CO_2 FOOTPRINT OF AURUBIS ROD I RHEINROD
in kg CO_2 equivalent per kg Aurubis ROD

3,610
Global average ICA[8]
(data reference 2019)

2,152
Aurubis ROD I RheinROD[9]
(data reference 2023)

CO_2 FOOTPRINT OF AURUBIS NICKEL SULFATE
in kg CO_2 equivalent per t nickel in nickel sulfate

18,200
Global average[10]
(data reference 2018/2019)

5,640
Aurubis nickel sulfate[11]
(data reference 2023)

[1] International Copper Association, Copper Environmental Profile, Global, 2023.
[2] Aurubis, with support from Sphera, report: Life Cycle Assessment of Copper Cathode, Sept. 2024.
[3] International Tin Association, Life cycle assessment of average tin production. Please note that the ITA data is provided pursuant to the CML method, which is only comparable to a limited extent.
[4] Aurubis, with support from Sphera, report: Life Cycle Assessment of Tin, Sept. 2024.
[5] Ecoinvent, 2021 database.
[6] Aurubis, with support from Sphera, report: Life Cycle Assessment of Silver and Gold, Sept. 2024.
[7] World Gold Council, Gold and climate change: Current and future impacts. Oct. 2019.
[8] International Copper Association, Life Cycle Assessment of Wire Rod Global, March 2023.
[9] Aurubis, with support from Sphera, report: Life Cycle Assessment of Wire Rod, Sept. 2024.
[10] Nickel Institute, Nickel Sulphate life cycle data, 2021.
[11] Aurubis with support from Sphera, report: Life Cycle Assessment of Nickel Sulphate, Sept. 2024.

How we got there: Improvements through the continual implementation of environmental and climate protection measures

The targeted improvements were only possible through considerable investments in environmental measures that achieved ambitious environmental standards. In environmental protection, Aurubis also develops innovative and energy-efficient technologies that often set new standards worldwide.

Emission reduction
One approach we have taken to reducing emissions in air is the innovative gas purification plant installed at our primary smelter in Pirdop (Bulgaria). The plant uses a modern process known as Sulfacid that is unique in both Bulgaria and in the entire copper smelting industry.

Energy-efficient technologies
We have also invested in energy-efficient and low-carbon technologies at all Aurubis Group sites, implemented energy-saving measures, supported the switch to renewable energies, and as such enabled decarbonization. This includes the Industrial Heat project, for example, implemented at the Hamburg plant to use the waste heat from our production processes for district heating. The project has made HafenCity East the first quarter close to our Hamburg plant that is now almost exclusively supplied with carbon-free industrial heat.

Expanding recycling capacities
Expanding Aurubis' recycling capacities and the acquisition of recycling specialist Metallo also contributed to improving our ecological footprint. With the recycling facilities in Beerse (Belgium) and Berango (Spain), Aurubis has considerably expanded secondary material recycling, resulting in an even smaller footprint in the LCA results. The proportion of recycled copper in our copper cathodes was 43 % on average across the Group in 2023.

Improved multimetal recovery
Aurubis' efforts to transform raw materials into marketable products as completely as possible are also contributing to shrinking our overall footprint. Aurubis will continue to build on this strength in order to further cement our position as the most efficient and sustainable integrated smelter network in the world. This network also includes a metallurgical infrastructure that enables improved multimetal recovery.

Tomorrow Metals
We are ready for the future — are you?

Investments of more than

€ 1 billion

IN ENVIRONMENTAL PROTECTION SINCE 2000

Reducing around

40 %

OF THE CO_2 FOOTPRINT OF AURUBIS CATHODES SINCE 2013

Aurubis processes about

1 million t

OF RECYCLING MATERIAL ANNUALLY

6

AURUBIS SITES ALREADY CERTIFIED BY THE COPPER MARK

Everything we do, we do with passion and the highest quality standards. This is also true of one the most important goals of our time: sustainable economic activity. As an energy- and resource-intensive company, we recognized the need to act quite early and have done a lot to make our products and processes more sustainable. This places us among the best in the industry. We make this commitment tangible by summing it up in a product label: **Tomorrow Metals**.

This label is our promise to our customers and all our stakeholders that our entire product range is manufactured and delivered using only the highest ecological and social standards — today and in the future. This is especially true of our responsibility in the supply chain. Using comparable figures, our life cycle assessments also show that we are considerably better than the industry average *A comparison — Life cycle assessments for our metal products*. Tomorrow Metals therefore serves as the responsible, robust foundation of the significant societal transformations of our time, transformations that require our metals: They pave the way for generating renewable energies, for digitalization, for sustainable mobility, and much more.

Tomorrow Metals stands for our ongoing efforts to create more value with a lower footprint, in all areas of sustainability: the environment, people and the economy.

Tomorrow Metals — The Aurubis Sustainability Promise

Our goal is to create **more value** with a **lower environmental footprint**.

By decarbonizing our production, we are contributing to the **1.5 °C target of the Paris Climate Agreement**.

We consistently expand our **multimetal recycling** to make a significant contribution to the **circular economy** and help preserve **natural resources**.

Responsibility: Everything we do focuses on the balance among the **economy, people and the environment**.

Environmental protection — Facts and figures

As in previous years, this year's Environmental Statement is based on internationally recognized guidelines and reporting standards, in particular the guidelines of the Global Reporting Initiative (GRI) and EMAS.[1]

As described in the 2023 Environmental Report, our specific reduction targets and the associated reporting of specific emissions have been solely based on our multimetal indicator — the copper equivalent — since last year *Targets and successes in environmental protection*.

Reporting on additional environmental KPIs will remain based on copper production to represent medium- and long-term trends.

The European Union's new Corporate Sustainability Reporting Directive (CSRD) will apply to Aurubis for the first time in 2024. We will publish the first sustainability statement (CSRD report) in accordance with these new regulatory requirements for the 2024/25 fiscal year. The data will be contextualized in the next Environmental Report.

» We have invested more than € 1 billion since 2000 and about € 645 million since 2012 in measures to improve environmental protection throughout the Group *Fig. 1.13*.

The dust emissions arising during copper production can contain metals and metal compounds. The consistent use of the best available plant techniques has led to a 97 % decline in dust emissions in copper production per ton of copper since 2000.

Compared to reference year 2012, dust emissions per ton of copper have fallen by 49 %. Using the copper equivalent, this translates to a 35 % drop since 2018 *Fig. 1.14*.

Fig. 1.13: Capital expenditure for environmental protection in the Aurubis Group[2]
in € million

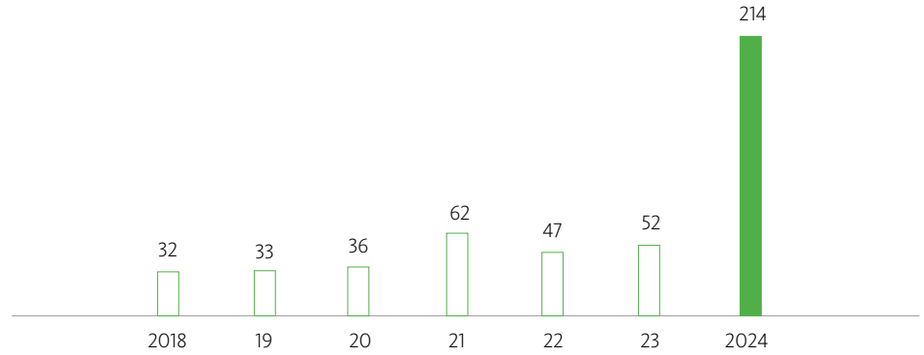
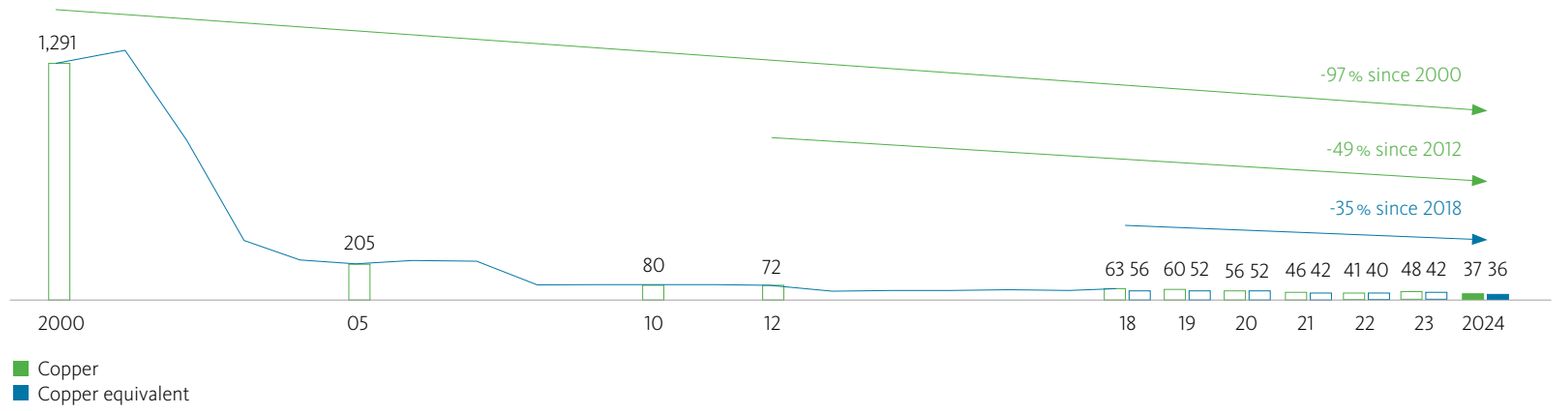


Fig. 1.14: Successful reduction of dust emissions in Aurubis Group copper/multimetal production[3]
Dust emissions in g/t of copper output and in g/t of copper equivalent



[1] This report may include slight deviations in the totals due to rounding. Some of the data is preliminary since it had not been validated externally as of the editorial deadline.
[2] Environmental investments of all production sites that are majority-owned by Aurubis (>50 %). The Aurubis sites in Beerse and Berango have been included since 2020. The data relates to environmental investments per fiscal year. Single years are provided for readability, for example 2024 for fiscal year 2023/24.
[3] The Aurubis sites in Beerse and Berango have been included in the assessment of specific emissions based on copper production since their acquisition in 2020. With the changeover to and target-setting based on the copper equivalent, the Aurubis sites in Beerse and Berango have been included in the representations since 2018.

Fig. 1.15: Sulfur dioxide emissions in Aurubis Group primary copper production
SO_2 emissions in kg/t of copper output

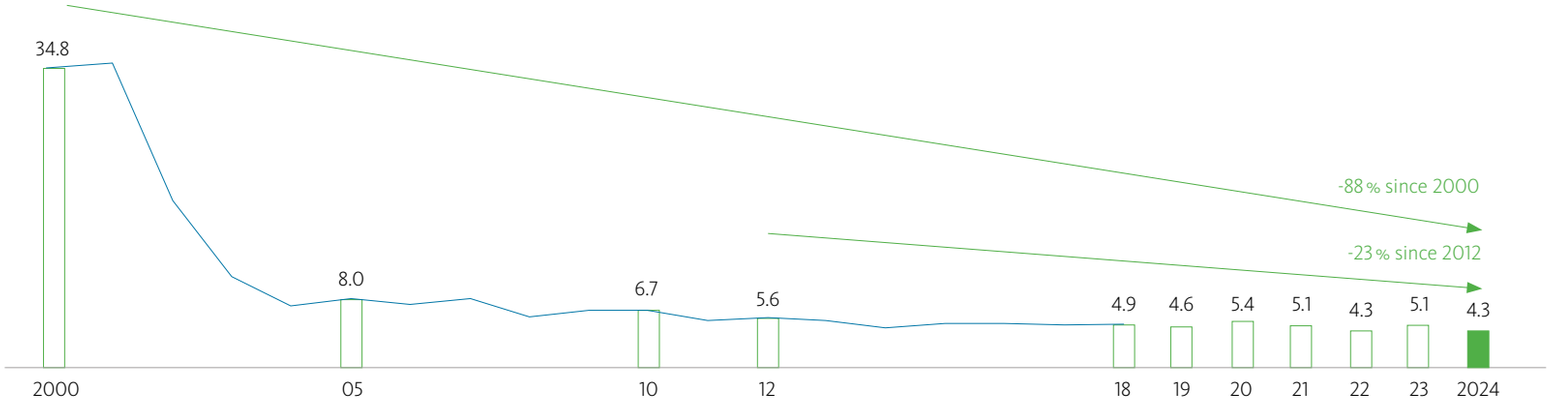
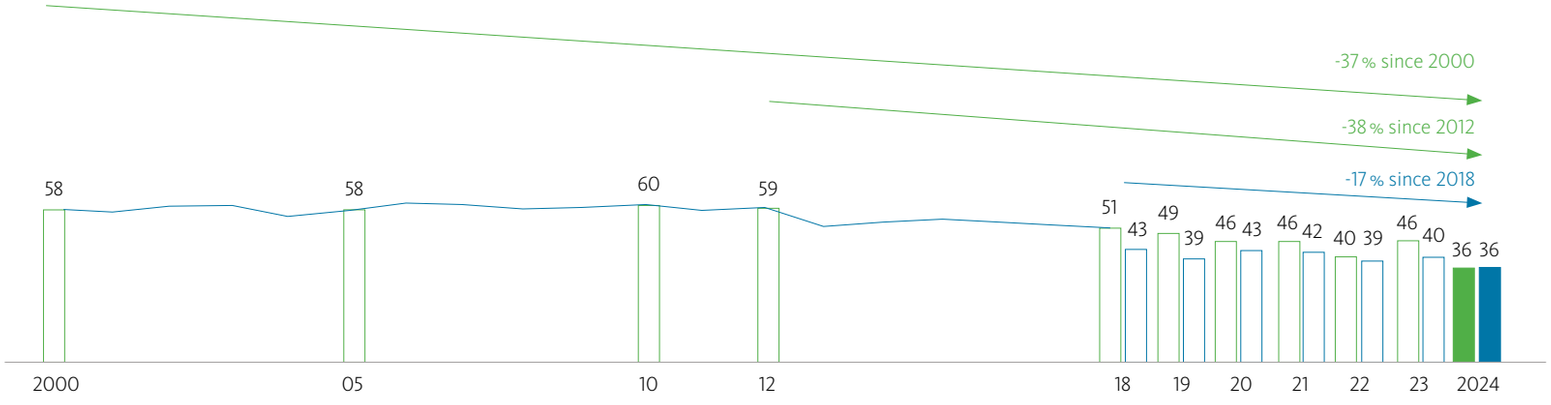


Fig. 1.16: Water withdrawal in Aurubis Group copper production[1]
Water withdrawal in m³/t of copper output and in g/t of copper equivalent

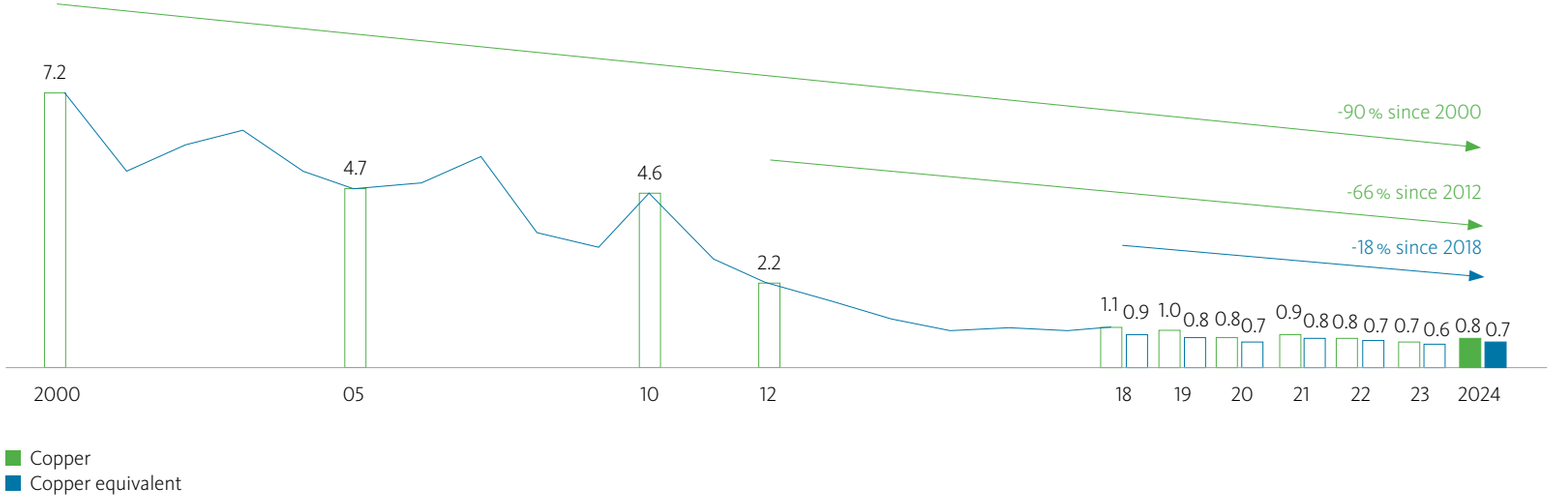


One of the main focuses in the 1990s was the use of state-of-the-art filter technologies for all directed emission sources, such as chimneys. Today, projects to reduce fugitive emissions are a top priority. Fugitive emissions can arise around hall openings — such as gates, doors or ridge turrets — and during material storage and handling. We have already leveraged technical measures to very successfully reduce directed dust emissions and have nearly exhausted the technical options. Ongoing developments concerning non-directed emissions pose additional challenges for the future that will require innovative technologies and the exploration of new technical solutions.

Apart from copper, sulfur is one of the main components of the copper concentrates in use. The gaseous sulfur dioxide produced when concentrates are smelted is converted into sulfuric acid in the sulfuric acid plant using the modern double catalysis process. When compared internationally, Aurubis is a forerunner in reducing sulfur dioxide emissions: Emissions per ton of copper output have been curtailed by 88 % since 2000 *Fig 1.15*.

[1] The Aurubis sites in Beerse and Berango have been included since 2020.

Fig. 1.17: Metal emissions[1] to water in Aurubis Group copper/multimetal production[2]
Metal emissions to water in g/t of copper output and in g/t of copper equivalent



[1] KPI includes the following metals: Cu, As, Cd, Hg, Pb, Ni, Zn.
[2] The Aurubis sites in Beerse and Berango have been included in the assessment of specific emissions based on copper production since their acquisition in 2020. With the changeover to and target-setting based on the copper equivalent, the Aurubis sites in Beerse and Berango have been included in the representations since 2018.

Apart from conserving water, treating wastewater and thus avoiding environmental pollution is one of our fundamental responsibilities in industrial environmental protection since water may contain metals after use. We have reduced metal emissions to water in copper production processes from 7.2 to 0.8 g per ton of copper output since 2000. This is a decline of 90 %.

Compared to reference year 2012, metal emissions to water per ton of copper was reduced by 66 %. Using the copper equivalent, this translates to an 18 % drop since 2018 *Fig. 1.17*.

At a glance — Environmental KPIs for the Aurubis Group[1]

	Unit	2020	2021	2022	2023	2024
Emissions to air						
Dust	t	102	86	77	81	61
NO_x	t	863	820	877	805	939
SO_2	t	5,424	5,212	4,789	4,799	4,472
Emissions						
Metal emissions to water[2]	t	1.61	1.78	1.55	1.44	1.62
Water use						
Total water withdrawal	**Million m³**	**78.3**	**77.9**	**70.7**	**73.2**	**63.0**
Water withdrawal by source						
Surface water	Million m³	74.6	74.2	67.4	69.8	60.1
Rainwater	Million m³	0.6	0.6	0.6	0.9	0.8
Groundwater	Million m³	0.6	0.7	0.4	0.4	0.4
Municipal water	Million m³	2.2	2.1	2.0	1.8	1.2
Other	Million m³	0.3	0.4	0.3	0.4	0.6
Total water discharge	**Million m³**	**71.9**	**70.3**	**66.4**	**67.5**	**57.9**
Water discharge by destination						
Surface water	Million m³	70.5	69.1	65.3	66.5	57.7
Municipal wastewater system	Million m³	1.3	1.2	1.1	1.0	0.3
Wastewater to third parties	Million m³	<0.1	<0.1	<0.1	<0.1	<0.1

[1] These KPIs include all production sites that are majority-owned by Aurubis (>50 %).
[2] KPI includes the following metals: Cu, As, Cd, Hg, Pb, Ni, Zn.
Some of the data is preliminary since it had not been validated externally as of the editorial deadline. The table may include slight deviations in the totals due to rounding.

	Unit	2020	2021	2022	2023	2024
Waste						
Hazardous waste	**t**	**50,970**	**50,543**	**47,361**	**44,392**	**52,828**
Landfilling	t	36,473	36,653	36,333	31,976	40,455
Disposal (thermal)	t	370	1,254	159	79	128
Thermal utilization	t	441	445	659	721	535
Recycling	t	11,638	10,338	8,035	10,117	10,516
Internal utilization/recycling	t	149	436	1,919	253	1,194
Non-hazardous waste	**t**	**81,705**	**41,984**	**38,740**	**38,496**	**27,972**
Landfilling	t	17,491	4,439	2,731	2,032	379
Disposal (thermal)	t	624	583	643	628	733
Thermal utilization	t	435	950	802	939	1,510
Recycling	t	57,068	34,970	33,828	33,722[4]	22,687
Internal utilization/recycling	t	5,955	832	664	885	2,663
Construction waste	**t**	**17,887**	**28,554**	**126,730**	**94,359**	**131,019**
Energy and CO_2						
Total energy consumption	**Million MWh**	**3.72**	**3.79**	**3.62**	**3.35[4]**	**3.33**
Primary energy consumption[1]	Million MWh	1.72	1.85	1.76	1.73[4]	1.72
Secondary energy consumption[2]	Million MWh	2.00	1.94	1.85	1.62[4]	1.61
Direct CO_2 emissions[3]	kt CO_2	540	559	555	564[4]	509

[1] Including energy consumption for on-site vehicle traffic.
[2] Including electricity for oxygen generation.
[3] Excluding CO_2 emissions from vehicles in line with the emissions trading system.
[4] KPI was corrected after the fact.
Some of the data is preliminary since it had not been validated externally as of the editorial deadline. The table may include slight deviations in the totals due to rounding.

Updated Aurubis AG Environmental Statement 2025

Hamburg Site

The Hamburg plant

The largest Aurubis AG production site and the Group headquarters is located on the Elbe island Peute, only about four kilometers, as the crow flies, from Hamburg's city hall. At the Hamburg plant, Aurubis AG operates facilities for producing copper and other non-ferrous metals as well as for processing copper.

The plant was constructed in 1908 on an area of about 870,000 m² in Peute, an industrial inland harbor area in the Veddel district. Following reconstruction after World War II, the production facilities were continuously expanded and steadily modernized. Today, Aurubis AG's Hamburg site is one of the world's most state-of-the-art primary and secondary copper smelters and has an authorized production capacity of 450,000 t of copper cathodes each year. A total of about 2,500 people are employed at the Hamburg site, including about 200 apprentices.

The individual production sectors at Aurubis AG in Hamburg are divided into three plant areas *Fig. 2.1*. Plant North is mainly comprised of the administrative buildings, the workshops, sampling, the secondary copper smelter, and precious metal production. Plant South includes the sludge decomposition plant, the cracking acid cleaning facility, the wastewater treatment facility, the concentrate delivery area, the chemical plants, workshops and the casting line in particular. Plant East includes the main primary copper production facilities: the primary smelter (RWO), the contact acid plant (KAWO), and the tankhouse. This section also houses the rod plant.

Fig. 2.1: The Aurubis plant in Hamburg — a downtown copper smelter

1 Continuous casting plant 2 Secondary copper smelter/precious metals 3 Rod plant 4 Tankhouse 5 Primary smelter (RWO) 6 Administrative building

Processes at the Hamburg plant

Copper production is based on the use of primary raw materials (copper concentrates) and secondary raw materials (recycled materials, including electrical and electronic scrap).

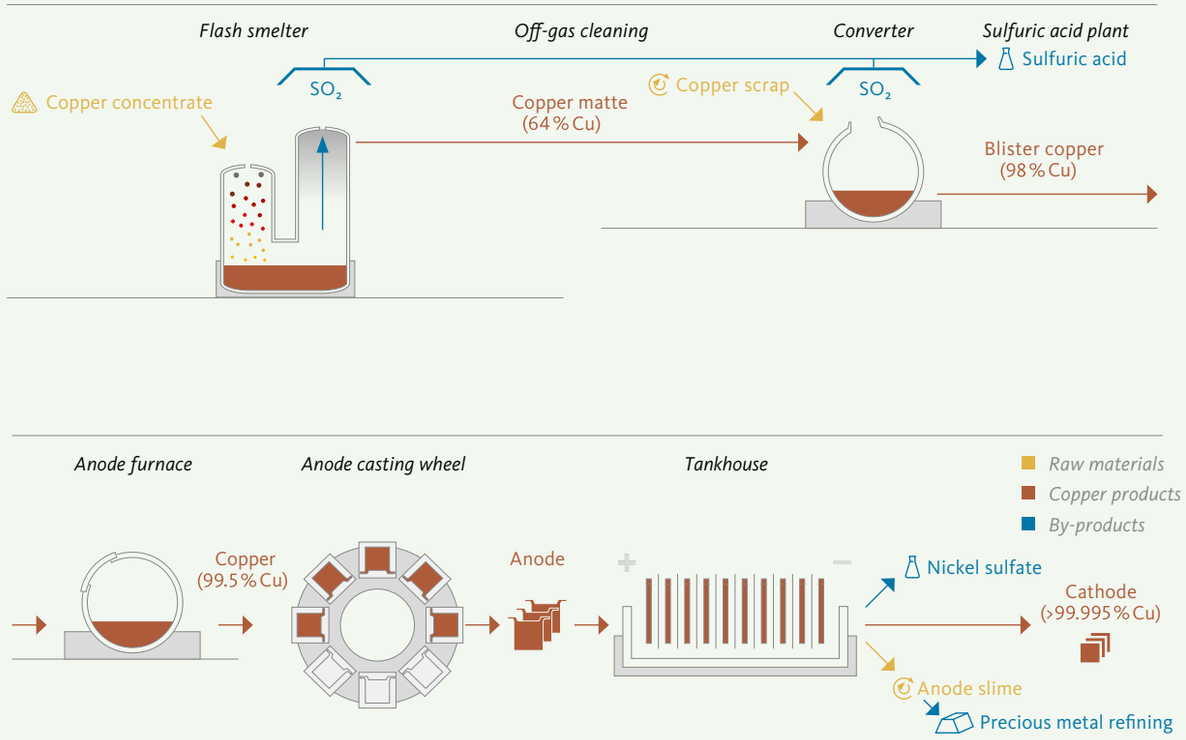
In the primary copper smelter, copper anodes (with a copper content of about 99.5 %) are produced from the primary raw material, copper concentrates, in multi-step pyrometallurgical processes. The metals in recycling materials can be drawn out in each step of the existing processes. The sulfur in the primary and secondary raw materials is oxidized into sulfur dioxide and converted in the downstream double absorption contact acid plant into sulfuric acid and oleum, two marketable products. These products are primarily used in the fertilizer and chemical industries.

Copper cathodes with a copper content of over 99.99 % are produced from the copper anodes in the copper tankhouse using electrochemical methods. The cathodes are used to manufacture copper intermediates (continuous cast rod, copper shapes) *Fig. 2.2*. The cathodes can be traded on the global metal exchanges.

Intermediates primarily produced in copper refining, such as flue dusts and slimes, are further treated in an electrothermal process in the secondary copper smelter's electric furnace.

Minor metals such as zinc, nickel, antimony, selenium and tellurium are collected and enriched in a targeted way in the matrix metals copper and lead. In the subsequent pyro- and hydrometallurgical processes of multimetal recovery, these elements are brought out in metallic form or as metal compounds.

Fig. 2.2: From copper concentrate to cathode



Internal intermediates and purchased recycling materials rich in precious metals are processed to extract precious metals. In the process, primarily internal and external anode slimes from the copper tankhouse, as well as skimmings rich in precious metals and bullion containing sulfur, are used as input in the top-blown rotary converter.

In the precious metal smelter, precious metals (silver, gold, platinum group metals) are separated using hydrometallurgical procedures and then extracted as commercial products.

Environmental protection organization at the Hamburg site

As the operator of facilities requiring a permit in accordance with Section 52b of the Federal Immission Control Act (BImSchG) and Section 58 of the Circular Economy Act (KrWG), the Aurubis AG Executive Board or an appointed member of the Executive Board is responsible for compliance with environmental protection regulations.

All environmental protection issues are coordinated, organized and monitored in the Environmental Protection department to support the different business sectors. The department appoints officers for the fields of immission protection, water pollution control, waste, accidents and harmful substances.

The integrated management system for occupational health and safety, energy, quality and the environment

In 2017, the three separate management systems for the environment, energy and quality were combined into an integrated management system (IMS) and jointly certified.

Aurubis AG has had an environmental management system at the Hamburg site since 2002, which is certified in accordance with ISO 14001 and EMAS.

The energy management system at the Hamburg site was implemented in 2005. The audit was performed within the scope of environmental management until 2013. In May 2013, the energy management system was certified for the first time in accordance with ISO 50001 due to the energy policy parameters. The switch to the revised 2018 standard took place in 2019, accompanied by internal workshops and coordinated dialogue about experiences within the Aurubis Group.

The quality management system for the entire Hamburg plant is certified in accordance with the ISO 9001 standard.

Occupational health and safety management was certified pursuant to ISO 45001 as an integral part of the IMS for the first time in 2021.

Tasks of the environmental management system

The environmental management system is responsible for maintaining and improving our environmental performance, ensuring compliance with our legal obligations, and strengthening our market position. Processes, targets and measures are defined, and their implementation monitored accordingly. Situational evaluations form the basis for decisions about the type, extent, suitability and execution of environmental protection measures. The EMAS environmental management system also helps implement the Aurubis Group's defined sustainability targets at the Hamburg site *www.aurubis.com/sustainabilitystrategy*.

The Hamburg Environmental Protection department tracks changes in legal requirements, reviews their effects on the different areas of our company, and ensures that our facilities are operated in conformity with the law. Because of the high complexity of the legal standards and requirements that have to be applied, the existing legal register has been supplemented by a web-based EHS software.

Management review and internal auditing of environmental management

The effectiveness of the integrated management system is reviewed with internal audits pursuant to EMAS regulations, ISO 9001, ISO 14001, ISO 45001, and ISO 50001.

The management review is based on the status of follow-up measures from past management reviews, targets and KPIs, changes involving the management system, information about the performance and effectiveness of the management system, summaries of the results of internal audits, the status of preventive and corrective measures, risk assessments, and information about resources and potential improvements.

Environmental aspects and performance

Following fundamental investments in filtering technologies in the 1980s and 1990s, about € 490 million has been invested in environmental protection in the Hamburg plant since 2000. With total capital expenditure of approximately € 1.9 billion in the same period, environmental measures account for approximately 25 % of overall capital expenditure on average. Among other things, dust emissions have been halved compared to the year 2000 with these investments. This makes a significant contribution to improving air pollution control in the environment. Investments are being made in the areas of water and noise as well *Fig. 2.3*.

When compared worldwide, Aurubis Hamburg holds a top position in environmental protection that extends beyond staying up to date with the state of the art. Additional improvements require higher and higher capital expenditure for the same level of reduction and the development of modern technologies. The objective of plant management is to continue improving the plant's environmental performance and the expansion of its top position in environmental protection.

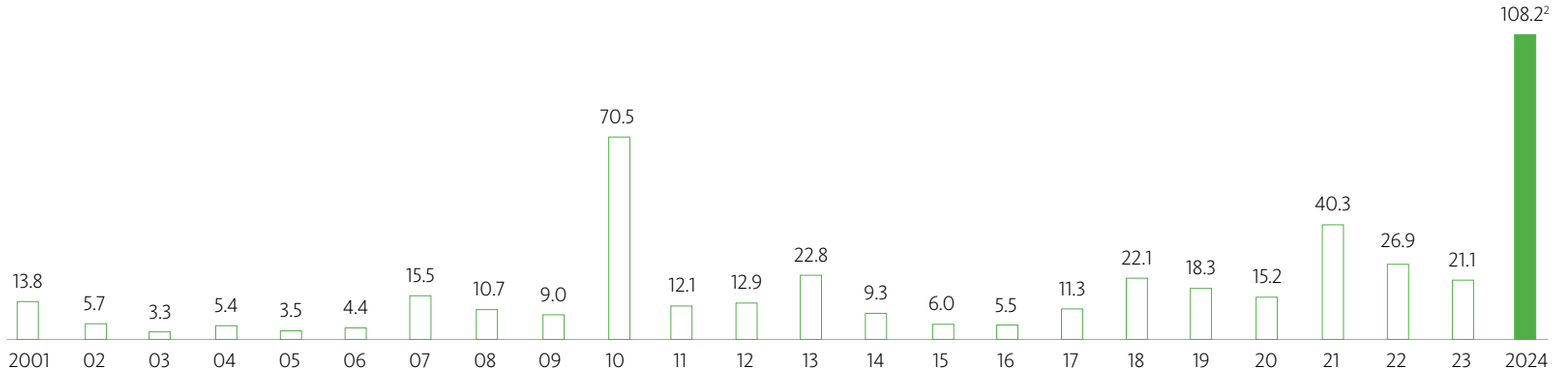
Air — Emissions

It is crucial for Aurubis AG to develop innovative technologies for air pollution control and to enter new technical territory in the process. About 70 % of the remaining metal emissions from the Hamburg production site come from fugitive sources, the majority of which stem from hall ventilation facilities.

Additional investments in air pollution control were made in both primary and secondary copper production in 2021. The first part of a large-scale investment to continue reducing fugitive dust emissions in primary copper production started up in October 2021. Since 2022 this system has sustainably reduced fugitive dust emissions from the converter hall by 40 %.

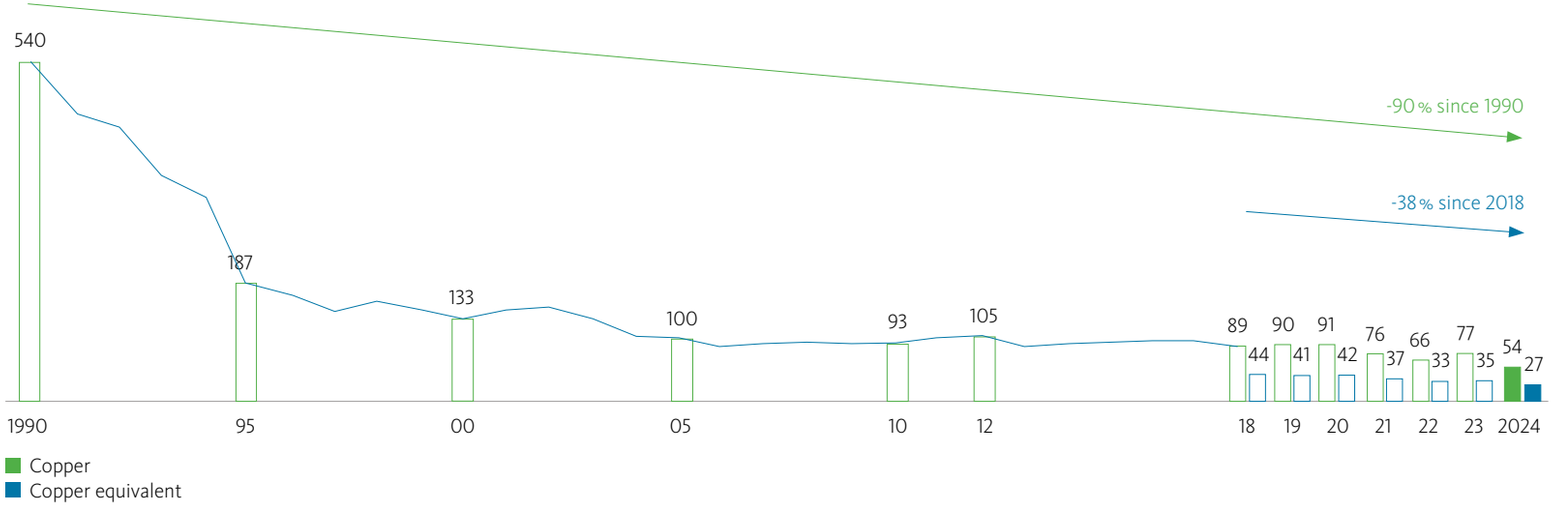
The new metal phase separation line in the secondary copper facility was commissioned in 2024. The secondary e-furnace's output is separated into multiple phases on a new semi-automatic casting line for targeted further processing. In contrast to the previous version, this casting line is equipped with mobile suction hoods and suction ports that operate selectively.

Fig. 2.3: Capital expenditure for environmental protection measures at the Hamburg site[1]
in € million



[1] The data relates to environmental investments per fiscal year. Single years are provided for readability, for example 2024 for fiscal year 2023/24.
[2] Top three environmental protection investments: Industrial heat extraction stage 2 (about € 73 million), environmental protection measures in the CRH project (about € 11 million), and environmental protection measures in the construction of the new precious metals smelter (about € 8.5 million).

Fig. 2.4: Dust emissions at the Hamburg site
Dust in g/t of copper output and in g/t of copper equivalent



All of the information in this chapter is based on the current Emissions Report, which is issued annually by the immission protection officer. The values outlined on the following pages are made up of a number of individual recordings. Directed emissions are mostly recorded as classified values from continuous measurements taken with a system provided by Durag data systems GmbH. Fugitive emissions from hall ventilation facilities, etc. are determined on a representative basis in recording campaigns carried out by both external recording institutes and the company's own Environmental Monitoring department and are used to calculate the annual loads. Fugitive emissions due to transshipments in storage areas, etc. are calculated using the corresponding emission factors from the technical literature and from measurements.

Specific dust emissions have been considerably reduced since 1990 and 2010 *Fig. 2.4*.

Targets and successes in environmental protection

Copper is the main metallic substance in the dust at the Hamburg production site. Specific copper emissions have been considerably reduced since 1990 and 2000. The already low level was further reduced when the new emission capture equipment in primary copper production was commissioned, resulting in the changes from the previous year *Fig. 2.5*.

Specific lead emissions have been considerably reduced compared to 1990 and 2000 as well. The commissioning of the emission capture equipment in primary copper production has had a positive effect here, too, and has resulted in further reduction *Fig. 2.6*.

Fig. 2.5: Copper emissions at the Hamburg site
Copper in g/t of copper output

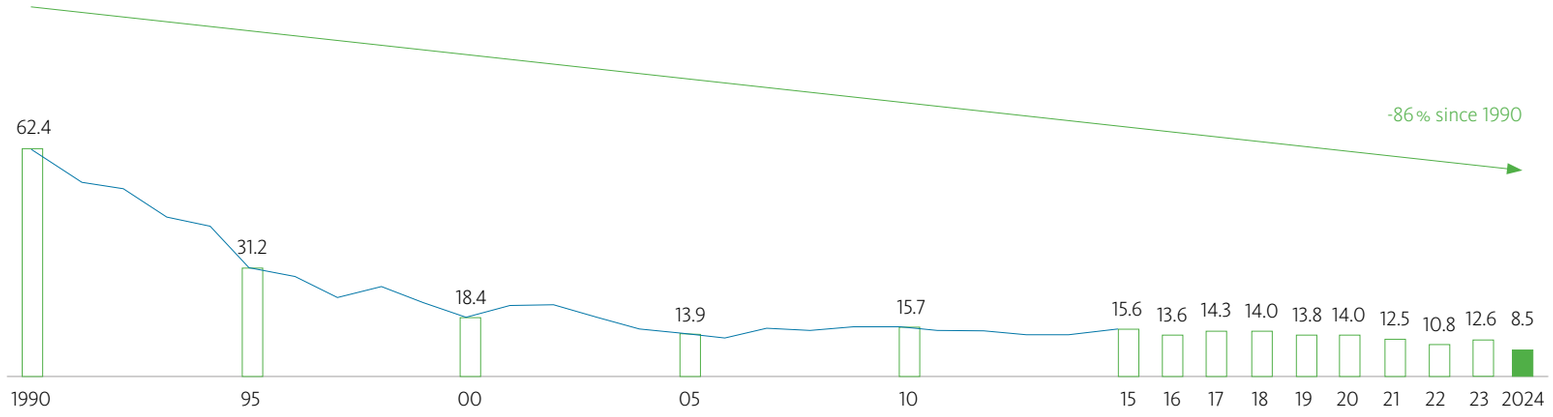


Fig. 2.6: Lead emissions at the Hamburg site
Lead in g/t of copper output

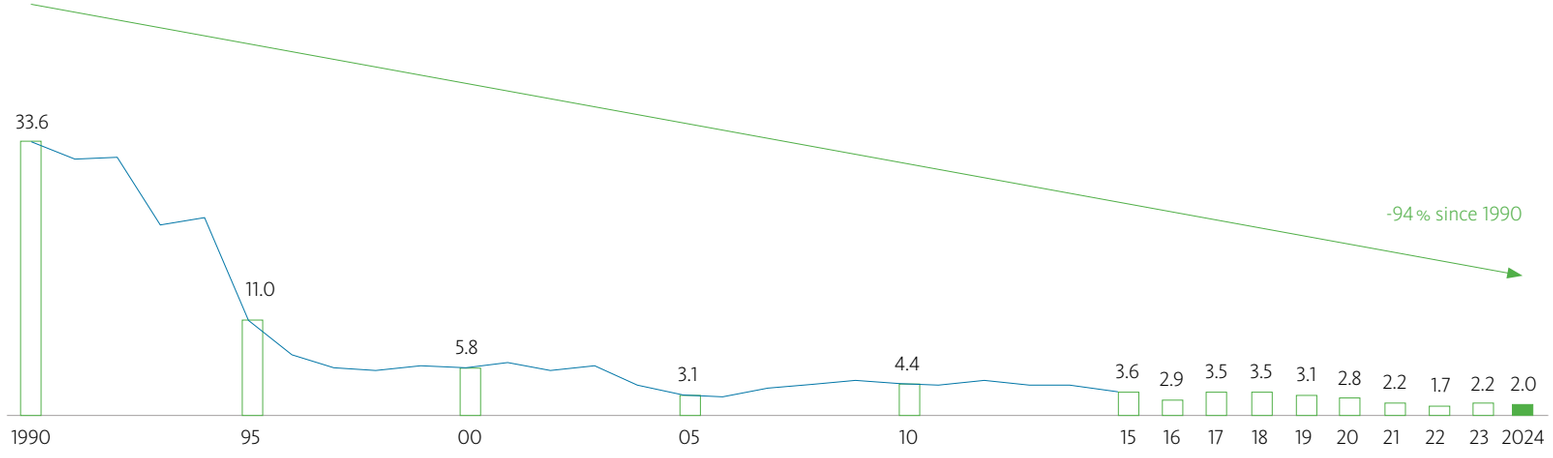


Fig. 2.7: Arsenic emissions at the Hamburg site
Arsenic in g/t of copper output

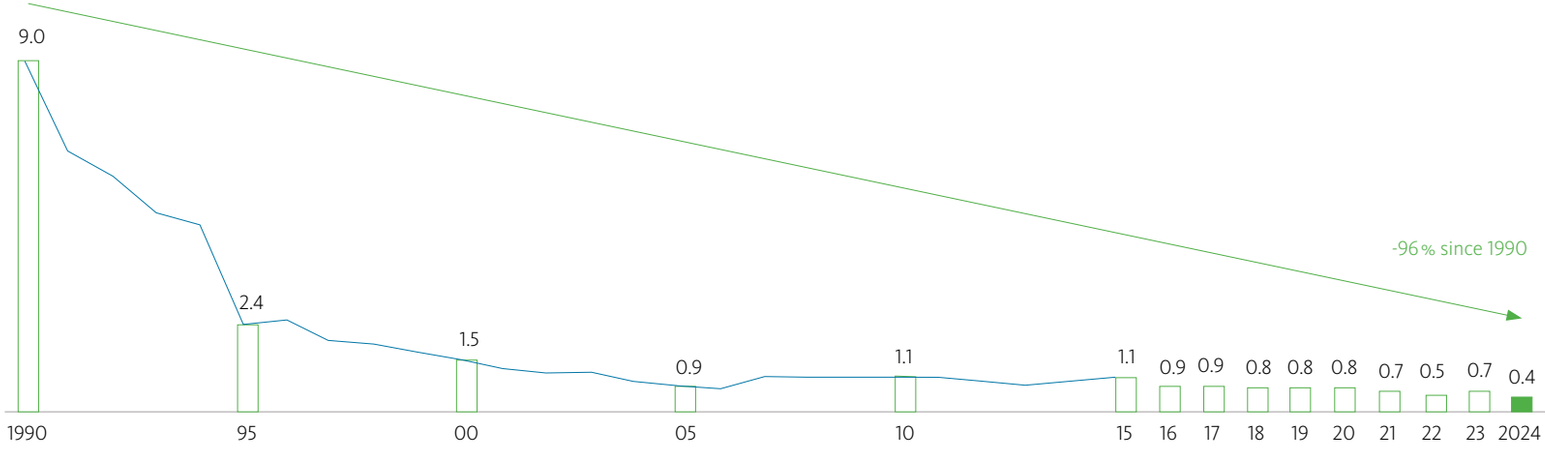
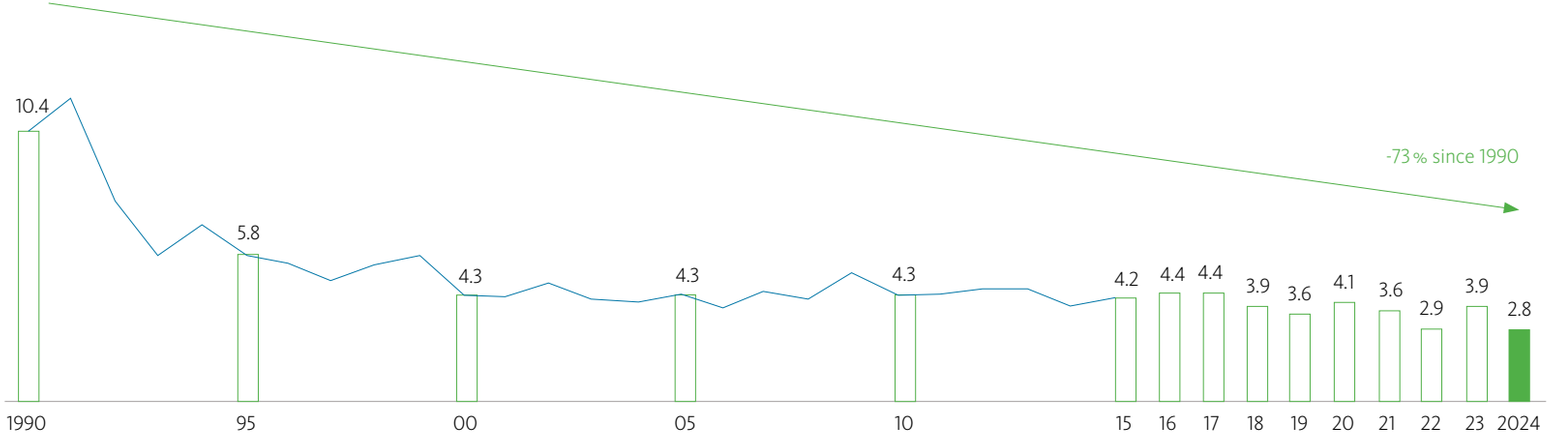


Fig. 2.8: SO_2 emissions at the Hamburg site
SO_2 in kg/t of copper output



Arsenic is a natural component of copper concentrates. Specific arsenic emissions have been reduced by over 90 % since 1990 in various steps of the copper refining process, further lowering the already low level of emissions here, too *Fig. 2.7*.

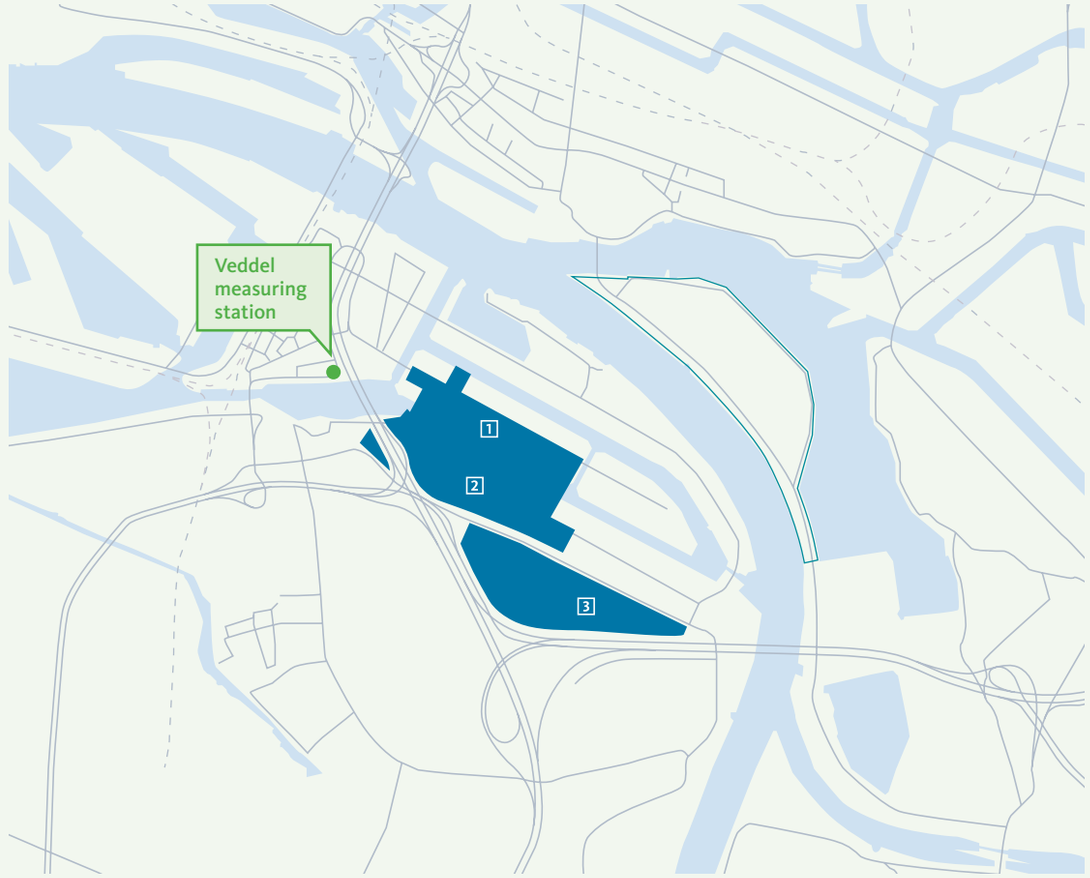
Sulfur is one of the main components of the copper concentrates. The gaseous sulfur dioxide produced when ore is smelted is converted into sulfuric acid in the sulfuric acid plant using the modern double catalysis process. The sulfuric acid is mainly used in the chemical industry. Specific sulfur dioxide emissions have been considerably lowered since 1990 and 2000 and remain low *Fig. 2.8*.

As a primary copper smelter, Aurubis AG's Hamburg site continues to be a forerunner in reducing specific sulfur dioxide emissions when compared internationally.

Aurubis again adhered to and fell significantly below the emission thresholds established in the permits based on the Technical Instructions on Air Quality Control (TA Luft) for sources of collected and fugitive emissions in 2024. The limit values from the TA Luft relevant for Aurubis are detailed in chapters 5.2.2, 5.2.4, 5.2.5, 5.2.7, and 5.4.3.3.1 in particular.

https://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_18082021_IGI25025005.htm

Fig. 2.9: Location of Veddel measuring station near the Aurubis plant in Hamburg



1 Plant North 2 Plant South 3 Plant East

Air — Immissions

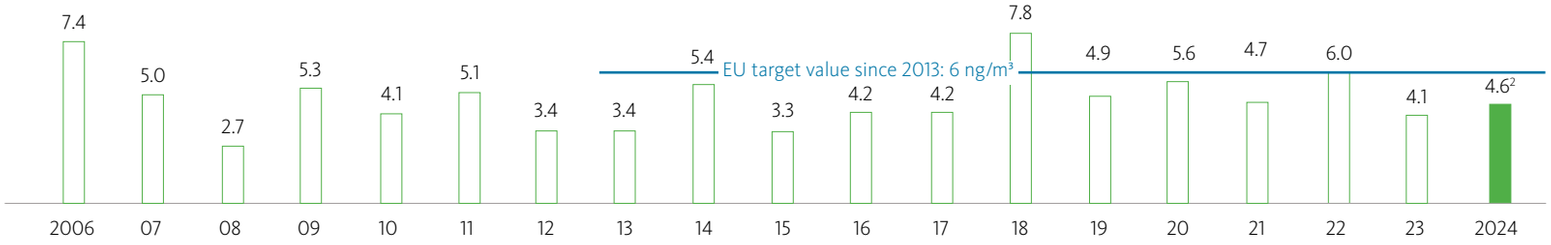
Projects to reduce fugitive emissions have high priority. The success of measures to reduce fugitive emissions is illustrated by the fact that the results of the suspended particulate recordings taken by the Hamburg environmental authority indicate continued low levels. The Veddel measuring station of the Hamburg Air Quality Measurement Network is relevant for the official air quality recordings. It is located in the adjacent neighborhood, about 500 m west of the plant premises.

Due to extensive investments in emission reduction, the immission situation has improved continuously since the 1990s. Limit values for air pollutants in the ambient air have not been exceeded in the area surrounding Aurubis AG's Hamburg site for many years.

The value measured for arsenic at the Veddel measuring station was below the target level (a yearly average of 6 ng/m³) in 2024. Aurubis' goal is to reduce its contribution to the immission values related to particulate matter in the ambient air through additional measures in order to ensure that immission values stay below the limit in the long term, even in the case of declining climate conditions and increasing aridity.

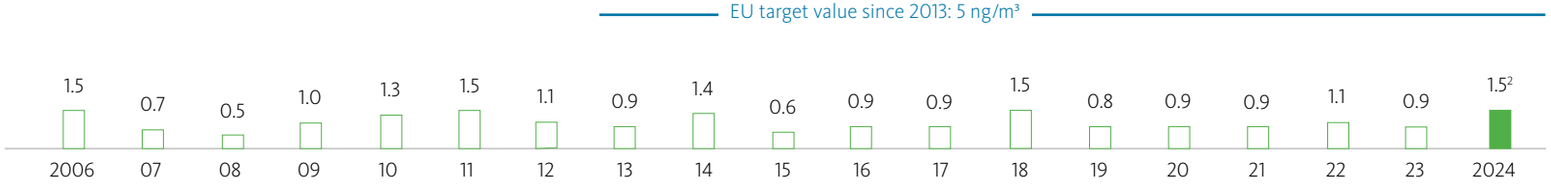
To continue reducing the site's immissions into the surrounding area, a project to capture fugitive emissions from the primary smelter production hall as needed began in 2020. Roof openings will also be closed, the air will be suctioned, and an adjustable amount of over 1,000,000 m³/h will be filtered in an innovative and highly efficient installation. The project has an investment volume of over € 100 million. The first stage was commissioned in October 2021. In addition to equipment to capture emissions on the current ridge turrets (openings in the roof that serve to conduct the heat released in the production process away from the hall), the existing suctioning equipment will be optimized and the flow conditions in the production hall will be improved through an adjusted air intake duct.

Fig. 2.10: Low immission values (arsenic) at the Veddel measuring station[1]
Arsenic immissions at Veddel measuring station in ng/m³



[1] Data published by the State Ministry for the Environment, Climate, Energy and Agriculture.
[2] Aurubis forecast, official annual average not published yet.

Fig. 2.11: Low immission values (cadmium) at the Veddel measuring station[1]
Cadmium immissions at Veddel measuring station in ng/m³



[1] Data published by the State Ministry for the Environment, Climate, Energy and Agriculture.
[2] Aurubis forecast, official annual average not published yet.

1 Gram (g) = 1 billion nanograms (ng)

Water

The wastewater from Aurubis AG's entire Hamburg plant is composed of precipitation, indirect and direct cooling water, condensate, process wastewater, and desludging water. All of the plant's precipitation is collected separately and cleaned in two separate processing facilities. Precipitation is reused in some cases — for instance, as cooling water. Sanitary wastewater is discharged into the city sewer system.

Direct discharge

In the plant's internal wastewater treatment facility, process wastewater and precipitation are cleaned using state-of-the-art technology. The Hamburg plant has water law permits for direct discharge into the Elbe River and observes their requirements. Compliance with these requirements is closely monitored both as part of the internal company audits and through the audits performed by the governmental authorities.

The metal loads connected to direct discharge, which are related to production volumes, were at 1.4 g/t and therefore within the range of the last few years during this reporting year again. This KPI has decreased by more than 30 % since 2000 due to investments and process improvements. Minimizing the wastewater volume and load is a criterion in project implementation. The standard achieved today has made it possible to exploit minimization potential to the highest degree possible. The proportion of heavy metals discharged by Aurubis AG's Hamburg plant in the Elbe's total load is currently less than 0.1 %. The large-scale shutdown in 2024 led to lower facility utilization as well as additional discharge into the wastewater system due to cleaning work, among other factors.

The process control optimized in 2023 continued to be operated successfully in 2024. Quasi-continuous online analytical devices were also tested for the setpoint settings calculated automatically and stoichiometrically for optimal precipitant feed-in. Testing for the main metals continues in 2025. We anticipate both an additional load reduction, which will contribute to the sustainability strategy, as well as reduced costs due to lower precipitant consumption. Planning for the new wastewater-free precious metal production facilities will make a further contribution. Circulation management and wastewater-free processes have been closely considered during the planning stage. This facility will be in full operation in 2026, achieving positive impacts on wastewater. The entire Group plans to reduce the metal loads directly discharged with wastewater by another 25 % by 2030, with the participation of the Hamburg plant.

In this way, we are contributing to the national water strategy in Germany. The intention is to continue developing sustainable water resources management and to secure good water conditions in the long term.

In 2024 we started the concept study for the modernization of the central wastewater treatment plant. The aim is to adapt to future requirements for wet gas scrubbing as recycling and raw material complexity increase. Another objective is to reduce the energy demand and carbon footprint of the entire washing acid reprocessing procedure. The planning process is gradual and continues in 2025.

Indirect discharge and potable water

The consumption of potable water has declined by around 40 % since 2000. Potable water for the most part has not been used to produce steam since 2002. Recirculated condensate and available canal water, mainly as a supplement, are used to conserve resources.

Conserving water resources is part of the company guidelines. This applies to potable water in particular. This target also aligns with the national water strategy: The action program includes the development of water infrastructure adjusted to climate change.

All development projects are evaluated with respect to their resource requirements, which are adapted as necessary.

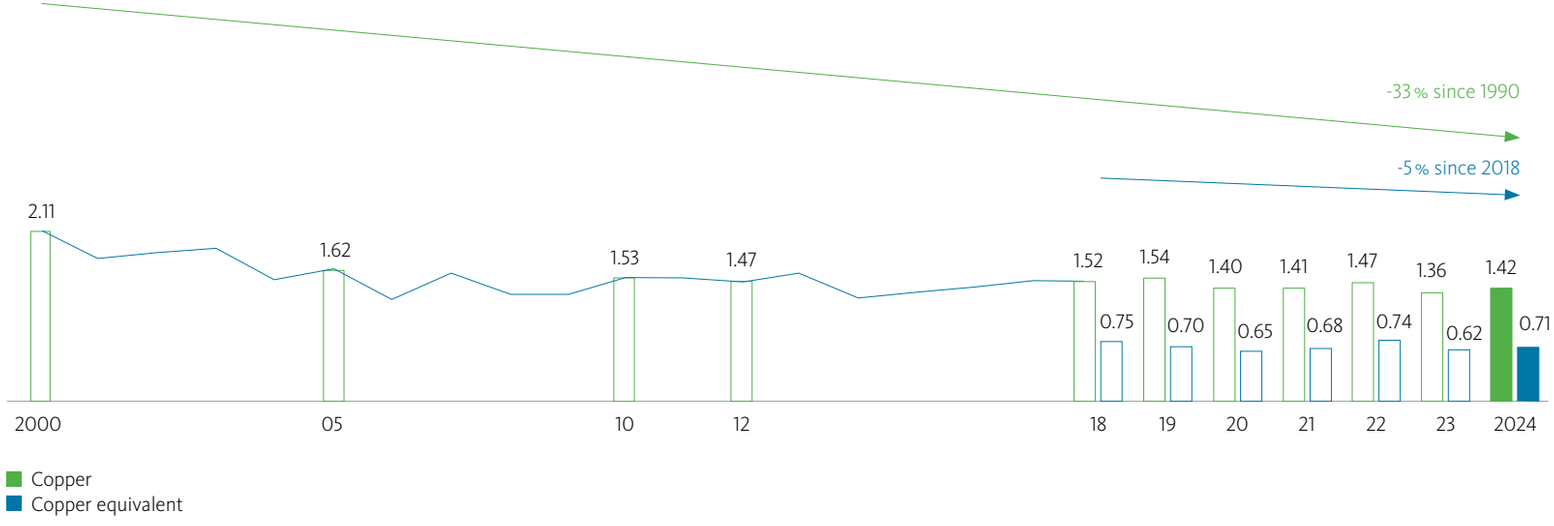
Cooling water

In 2024, cooling water was managed without any disruptions or negative impacts on the water balance. All of the limits for discharge temperature, temperature increase, heating of water, and heat input were maintained. Further limiting the volume of cooling water by 2030 is a part of the Sustainability Strategy.

Various measures and projects have reduced cooling water demand by over 30 % since 2010. These mainly include the conversion to circuit cooling systems for new plant facilities and the increasing proportion of extracted industrial heat. However, even smaller optimizations to limit water volumes to actual, shifting needs contribute to reducing water demand.

As in the previous year, over 60 % of the precipitation was used as cooling water prior to discharge in 2024.

Fig. 2.12: Metal emissions in water at the Hamburg site since 2000
Metal emissions in g/t of copper output and in g/t of copper equivalent



Facilities handling substances hazardous to water
At the Hamburg plant, Aurubis AG operates about 300 installations to handle substances hazardous to water that fall under the scope of the Ordinance on Equipment Handling Substances Hazardous to Water (AwSV). During the technical audits carried out in 2024, the accredited inspection authority once again found no safety-relevant deficiencies whatsoever. Keeping the plants in proper technical order plays a key role in protecting the soil and groundwater.

The Aurubis plant in Hamburg is a certified specialist company in accordance with the German Federal Water Act (WHG). Aurubis was externally recertified as a specialist company under the WHG in 2024.

Soil and groundwater
There are soil impurities typical for industrial areas at the Hamburg plant owing to many years of industrial use. The heavy metal pollution values are so low that no remediation is required from an official point of view. The plant premises are mostly paved so that soil impurities cannot mobilize.

Furthermore, the groundwater is protected from soil impurities by a water-resistant layer of clay. A sheet pile wall was also erected in the primary smelter that effectively prevents backwater from flowing beyond the plant premises. This protective measure is regularly inspected through advisory backwater monitoring to ensure that it is working properly.

To prevent negative changes in the soil and groundwater, Aurubis operates systematic soil and groundwater monitoring, which is also a component of the valid report on the initial condition that was issued on May 4, 2018 for the entire plant premises.

Soil management in connection with treatment capacities on site limit the volume of soil that accumulates during construction measures, for example, and therefore conserves landfill capacities.

All foundational measures are adapted to the specific geological conditions so as not to negatively impact the function of geological barriers.

Noise
Aurubis constructs and operates its production facilities in accordance with the current noise reduction technology. The noise register developed for the Hamburg site lists all of the relevant noise sources. The local environmental authority has defined noise immission limits for 20 immission areas surrounding the site. These requirements are established in the permits. The impact on the noise situation in the neighborhood is evaluated for all facility modifications and, if necessary, measures are derived and implemented. Aurubis is planning to update the noise register in the scope of an upcoming project. There were no noise complaints in 2024.

Waste
A total of 99,712 t of waste was received and recycled at the Hamburg site in 2024, of which 3,905 t were classified as hazardous waste. A total of 2,396 t of this came from other countries and was registered.

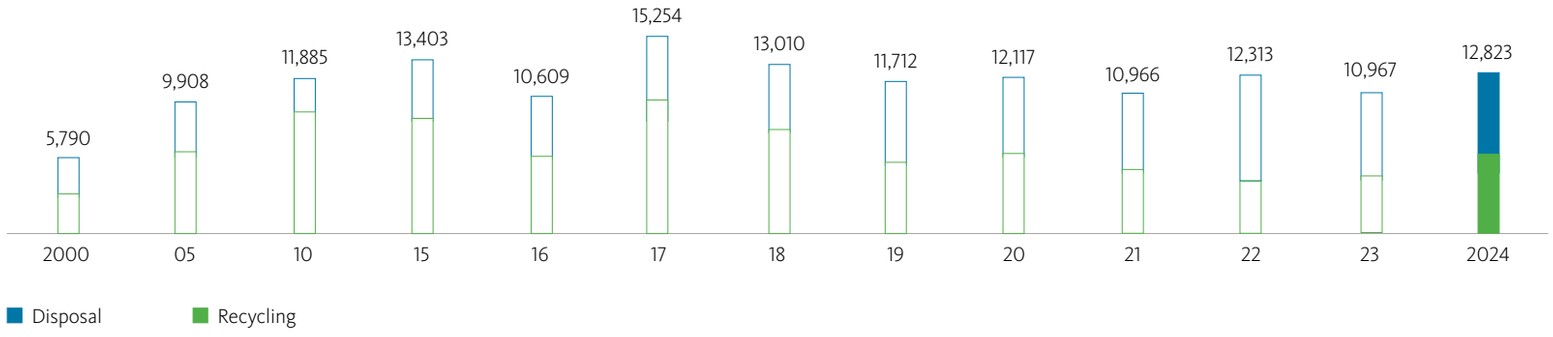
Overall, 7 % of the waste accepted was used as a slag former (e.g., spent abrasives, sand and excavation residues), and 93 % was used for metal recovery (dust, slimes, slags and precious metal-bearing sweeps).

In 2024, about 1.12 million t of input materials were processed at the Hamburg site. During processing, 12,823 t of production-related waste accumulated, which was disposed of in an environmentally sound manner *Fig. 2.13*.

The conversion of raw materials into products thus remained at a high level. Of the entire volume, 6,324 t was directed to recycling and 6,499 t to external disposal. This corresponds to a recycling rate of approximately 49 %. Most of the waste that is disposed of is slimes from off-gas cleaning, as well as washing fluid and emulsions.

With an annual output of 441,646 t of refined copper in 2024, the specific waste level is 29 kg per ton of product (2023: 25 kg/t).

Fig. 2.13: Disposal methods for production-related waste at the Hamburg site
in t/year



A total of 24,410 t of olivine pyroxene rock from the secondary smelter (RWN) and 3,137 t of slag material from the primary smelter (RWO) could not be marketed as product and were taken to landfills. In the process, nearly 90 % of the volumes were recycled for use as landfill construction material.

A total of 65,209 t of construction waste accumulated in 2024. The volume went up significantly compared to the previous year due to increased construction activities and the large-scale maintenance shutdown at the site.

Energy and climate protection

We act responsibly towards future generations by economically using raw materials and energy. Our main energy sources are electricity and natural gas. Aurubis AG consumed a total of 1,122 GWh of energy at the Hamburg site in 2024. With an annual copper output of 441,464 t, this amounts to specific energy consumption of approximately 2.54 MWh/t of copper output (previous year: 2.68 MWh/t). It includes the electricity used to produce the oxygen necessary for the processes.

Furthermore, landfill gas was used in the production processes instead of natural gas (2024: 1.7 GWh). Aurubis uses 100 % of the landfill gas captured at the former Georgswerder landfill, though the supply volume from the landfill is continuously declining.

Viewed over the medium term, specific energy consumption has stagnated at the Hamburg site in the past several years despite the energy efficiency measures that have been implemented. Important reasons for this are the higher percentage of multimetal recycling and the commissioning of new facilities, such as the ridge turret suction system in the secondary smelter and in the primary smelter (Project RDE), which increases energy requirements due to the operation of the suctioning and filter equipment.

Fig. 2.14: Energy consumption at the Hamburg site
in MWh/t of copper output

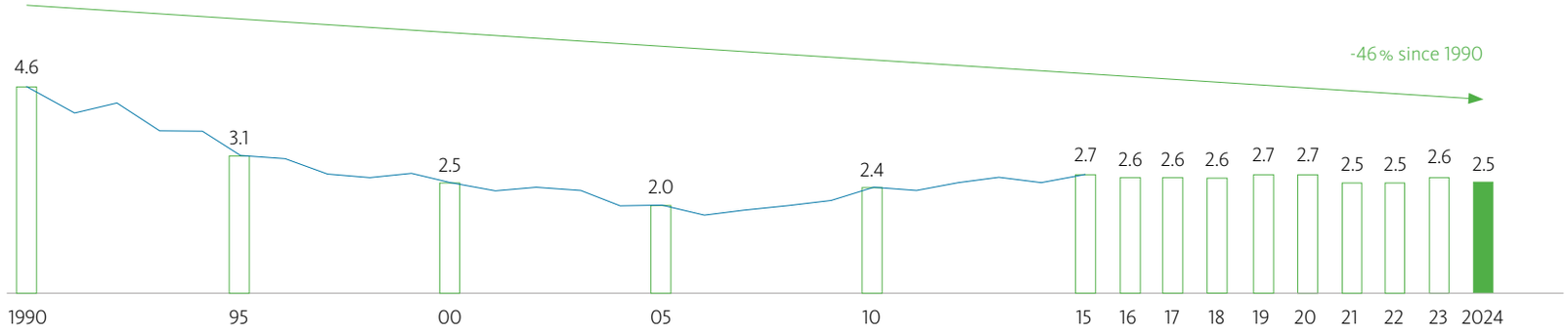
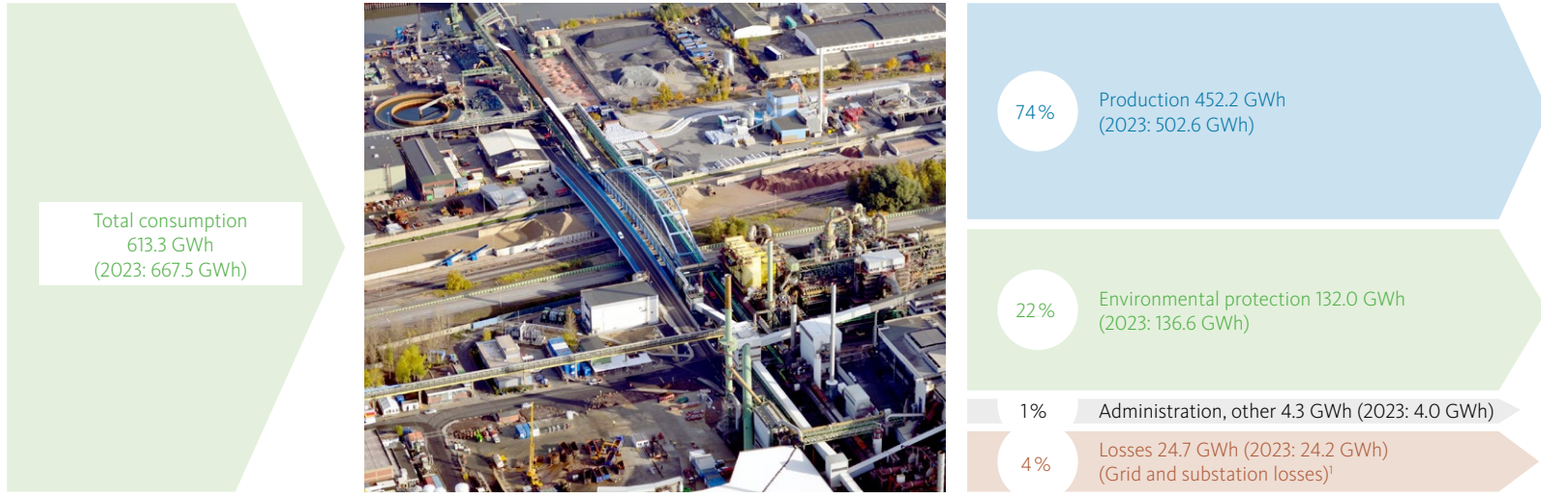


Fig. 2.15: Breakdown of energy consumption at the Hamburg site



[1] Consisting of unmeasured consumption, substation losses from 110,000 V to 400 V over multiple stages, and line losses. The figure is within the range that can be expected in the industry.

Taking a longer-term view, specific energy consumption has been significantly reduced at the Hamburg production site in the last few decades, falling by almost 50 % compared to 1990. It has even been possible to reduce fuel-related specific CO_2 output by 70 % since 1990. The reason for this is the strongly reduced use of particularly CO_2-intensive fuels, especially coal.

With an output of 441,464 t of copper output in the calendar year, specific CO_2 emissions from fuel amounted to 0.25 t CO_2/t of product in 2024 *Fig. 2.16*. This corresponds to 110,997 t of CO_2.

The calculation is based on CO_2 emission factors from the following sources:

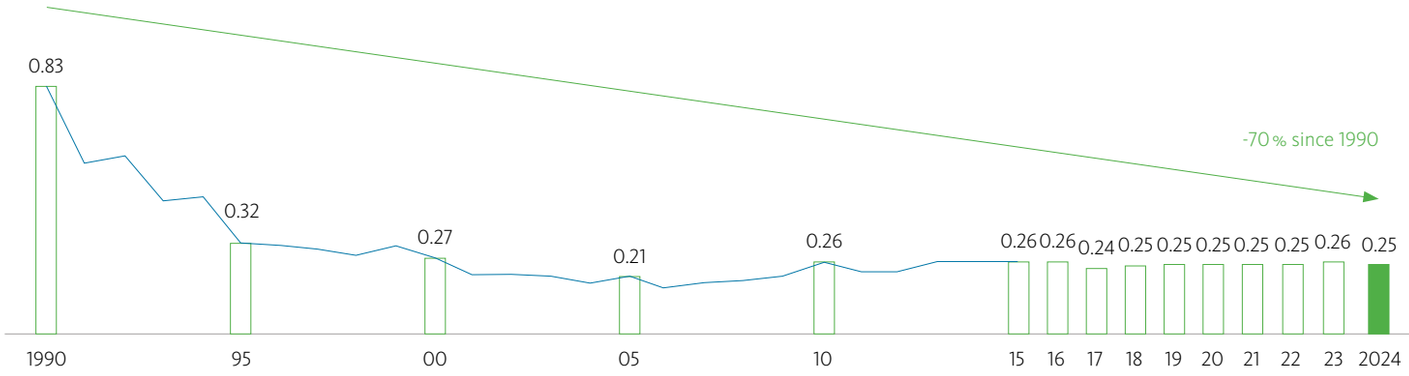
- For natural gas: GasCalc calculation program, Version 2.6, published by SmartSim GmbH
- For all other fuels: German Emissions Trading Authority (DEHSt) data, last reviewed in January 2025

When it comes to maintenance measures and new investments, engines and other energy-consuming equipment with as high an energy efficiency class as possible are used.

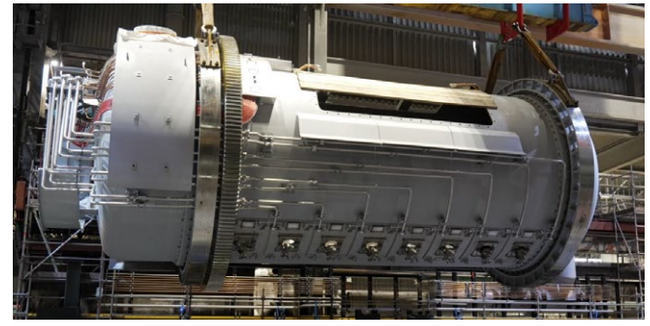
To enable the use of renewable energies, we are arranging more flexible electricity sourcing to be able to react to fluctuating availability. The first power-to-steam installation at the Hamburg plant was commissioned in 2019. This is an electrode steam boiler that can be hooked up to the grid during phases in which there is a surplus of renewable energy. In parallel, the existing steam boilers powered by natural gas are ramped down accordingly. This allows renewable energies to be used instead of fossil fuels to generate a heat output of 10 MW at the site. This reduces the load on the energy grid at the same time. Automated operation of the process kicked off in 2024, and flexibility enhancements are ongoing.

During the FSH24 large-scale shutdown, two new anode furnaces were installed that can use hydrogen as an alternative to natural gas.

Fig. 2.16: CO_2 emissions from fuels at the Hamburg site
in t CO_2/t of copper output



New power-to-steam facility in the Hamburg plant



Installing hydrogen-ready anode furnaces

Waste heat use

Aurubis strives to use process waste heat to the greatest possible extent. It is used to heat buildings, to facilitate the production processes, and to generate electricity. With 75 % of the steam required generated from residual heat, very little was produced from fossil fuels in 2024. Copper production from ore concentrates begins in the flash smelter in the primary smelter (RWO). Its exhaust gases have a temperature of 1,400 °C and contain about 35 % sulfur dioxide, which is processed into sulfuric acid in a contact acid plant.

The flash smelter's hot exhaust gases are initially cooled in a waste heat boiler, producing 60-bar steam.

Several steam turbines have been installed at the Hamburg site as an effective energy-saving measure. The 60-bar steam is first depressurized to 20 bar in the Interplant turbine, which was commissioned in 2014. The 20-bar steam serves as process steam for various processes in the plant. The remaining steam volume is depressurized to 3 bar in the first stage of another steam turbine in the thermal power plant. This steam is then available as process and heating steam in the plant and administrative buildings. A total of 2.8 GWh of electricity was produced from waste heat in 2024.

On October 29, 2018, the supply system for providing the HafenCity East district with industrial heat from Aurubis was commissioned in an inauguration ceremony. With the implementation of this joint project, which is unique in Germany and is supported by the climate alliance between Aurubis and energy service provider enercity, up to 160 million kWh of heat per year can be transferred to consumers via pipeline. This is equivalent to the heat demand of about 8,000 four-person households. Aurubis' production facilities also use up to 40 million kWh. Aurubis and enercity each invested about € 21 million. The project was funded by the German Federal Ministry for Economic Affairs and Energy.

Fig. 2.17: District heating pipeline route from the Aurubis plant to HafenCity East

The heat is CO_2 free. It is generated without the use of fossil fuels and released as heat of reaction in sulfuric acid production. This forward-looking use of waste heat can save up to 20,000 t of CO_2 annually. The Elbe River benefits as well: Recovering the heat saves about 12 million m³ of cooling water per year.

The German Energy Agency honored the joint project with the 2018 Energy Efficiency Award in the Energy Transition 2.0 category as a flagship project. Furthermore, the project received the German Renewables Award 2018 from the Renewable Energies Cluster, the ener.CON Europe Award 2019, and the Responsible Care Award 2019 from the VCI. The climate alliance was honored as a finalist for the EUSEW Awards by the European Commission and the Innovation Prize for Climate and the Environment by the German Federal Ministry for the Environment in 2019 and 2020, respectively.

Continuation: The heat transition is an important part of the energy transition. This is especially true for a metropolis like Hamburg, which has about 900,000 apartments. The energy needed to provide heating, warm water, and lighting to the city's buildings makes up 40 % of the total energy demand and is therefore significantly higher than the energy demand in the transport and industry sectors. Today, the heat supply in Hamburg is dominated by decentralized, gas-fueled heating systems and by a large central district heating network whose thermal output is based on conventional large-scale power plants and heat generation from coal, gas and waste. The implementation of the project is therefore a central milestone on the path to more sustainability and better climate protection.

The pipeline has already been dimensioned to accommodate the entire waste heat potential of sulfuric acid production and additional potential sources of waste heat.

Industrial Heat expansion
Extensive retrofitting measures carried out in the contact acid plant during the FSH24 large-scale shutdown enable us to now supply up to 60 MW or 500 million kWh of industrially generated, CO_2-free heat per year to the city. The two Industrial Heat projects will be able to reduce CO_2 by up to a combined 120,000 t per year as of the 2024/25 heating period. The associated supply contract was concluded with the municipal supplier of district heating.
"Our commitment to the climate: Industrial Heat 2.0"

Direct CO_2 emissions — Emissions Trading System
As an energy-intensive company, the Hamburg site has been required to participate in the European Emissions Trading System (ETS) since 2013, now in the fourth trading period. The direct CO_2 emissions — mainly from natural gas consumption — are verified by TÜV NORD CERT and reported to the German Emissions Trading Authority (DEHSt).

Registered CO_2 emissions amounted to 136,929 t for 2024. More than 70 % were caused by the fuels used, mainly natural gas, while the remainder was caused by the carbon contained in the raw materials, recycling materials, and additives.

Indirect CO_2 emissions
Copper production is an energy-intensive process, so a reliable electricity supply is very important. Aurubis therefore has a long-term electricity supply contract. Electricity production leads to CO_2 emissions, which are indirect CO_2 emissions for Aurubis, and therefore indirect environmental effects. In 2024, these indirect CO_2 emissions totaled 181,933 t (pursuant to the German electricity grid's preliminary emission factor for 2024; source: BDEW; 0.298 t CO_2/MWh).

The electricity producer already reported these indirect CO_2 emissions to the trading authority. Any costs were passed on via the electricity price. Therefore, these indirect CO_2 emissions are not included in the amount reported by Aurubis to the trading authority.

Retrofitting the contact acid plant in the Industrial Heat project

Hamburger Energiewerke warm water buffer tank

CO_2 reduction targets
The Aurubis Group has set ambitious targets and would like to be carbon-neutral before 2050. The aim is to reduce the CO_2 emissions associated with fossil fuels and electricity (Scope 1 + 2) by half throughout the Group by 2030. CO_2 emissions resulting from processes, transport, supply chains, etc. are to be reduced by 24 % by 2030 (Scope 3; reference year: 2018 respectively).

Our commitment to the Science Based Targets initiative (SBTi) underpins the Group's tireless efforts to reduce greenhouse gases. We have committed to setting science-based CO_2 reduction targets based on the SBTi, and as such to contributing to the 1.5 °C goal of the Paris Climate Agreement.

Implemented energy optimization measures have already cut more than 30,000 t of CO_2 per year since 2013.

The cuts are due to higher facility efficiency, energy-optimized operation, process improvements, and heat recovery. Smaller cuts resulted from the blanket use of LED lighting. The external industrial heat supply is not included in the CO_2 reductions mentioned.

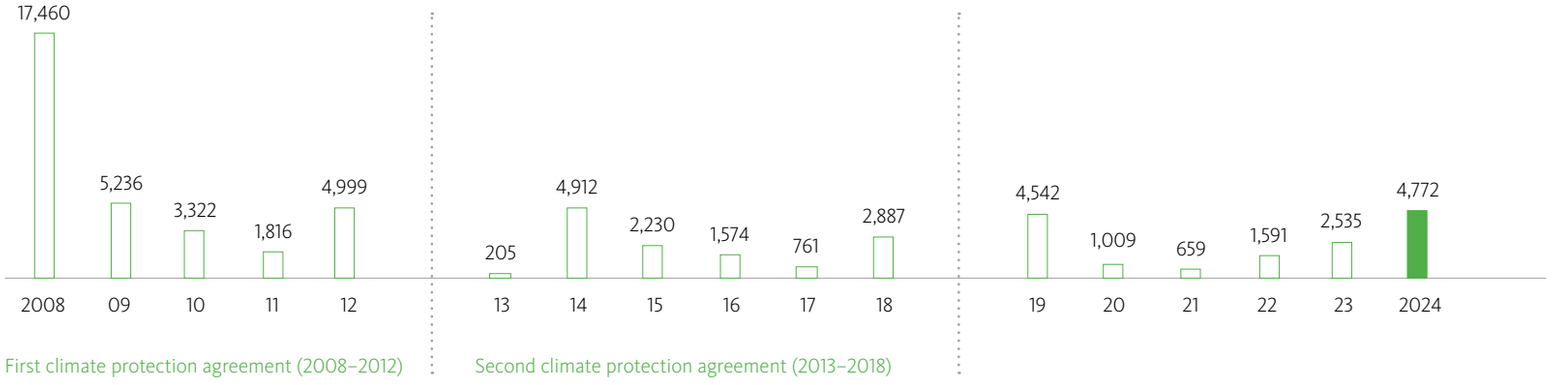
Audits and inspections by governmental authorities
The production facilities at the Hamburg site are monitored by the relevant governmental authorities as part of inspections and emissions surveillance. The reports on the inspections pursuant to the IED directive have been published online in the city of Hamburg's Transparency Portal since 2016. In 2024, all inspections verified proper operation in accordance with permits.

Emergency measures and crisis management
There are currently 64 so-called "hazardous incident companies" in Hamburg. A hazardous incident is any event in which a fire, explosion or similar occurrence releases hazardous substances that put people and the environment at serious risk. Because of the type and quantity of materials handled, the Hamburg production site is subject to the expanded obligations of the German Hazardous Incident Ordinance. The site is therefore subject to particularly strict safety precautions to prevent serious operational disruptions. Furthermore, for the case that hazardous incidents occur despite the safety precautions, measures to limit impacts have to be adopted. The safety report outlines the technical and organizational safety precautions and is reviewed and updated as necessary whenever there are changes to any facilities, at the latest every five years.

There were no incidents or other reportable disruptions in operations during the reporting period. Aurubis tested the alarm and hazard prevention plan in 2023 and 2024 as part of the nationwide warning day in Germany. A flood protection drill and a large-scale drill for a selected hazard situation in operations are scheduled for 2025.

All inspections specifically related to the Major Accidents Ordinance were carried out without the identification of any defects.

Fig. 2.18: Annual CO_2 reduction at the Hamburg site in the context of the Hamburg Climate Protection Concept
First and second climate protection agreement, in t of CO_2/year



Indirect environmental aspects
Indirect environmental aspects arise first and foremost from the transport of material and from the mines supplying Aurubis with copper concentrates. Nevertheless, the supply chain for products and raw materials is very important to the Aurubis Group. In this context, we refer to our Sustainability Report and the section "A comparison — Life cycle assessments for our metal products" in the Group portion of this Environmental Report, which provides detailed information about our supply chain management.

Transporting hazardous materials
An external hazardous goods officer was appointed for the Hamburg site.

In the 2023/24 fiscal year, about 1 million t of outgoing hazardous materials were registered at the Hamburg site of Aurubis AG. Of the total amount of hazardous materials, approximately 74 % are shipped by inland vessel, about 15 % by truck, and 11 % by train.

During the reporting period, there were no reportable incidents in the course of hazardous material transports. Monitoring and training were carried out again in 2024 in order to maintain this high safety standard.

Biodiversity
As an industrial site, Aurubis strives to promote urban biodiversity. We want to leave unpaved areas close to their natural state whenever this is feasible, carrying out only the minimum amount of maintenance required. The green areas surrounding the plant premises with bushes and trees serve as a refuge for many bird and insect species and should be preserved. We do not use any chemical pesticides on plants.

Together with the environmental authority and the NABU conservation organization, we coordinated measures to support important nature and species conservation efforts in Hamburg in 2024 again as part of the UnternehmensNatur network. Within the scope of a review process, additional measures were agreed on to promote urban biodiversity with a focus on aligning goals to promote urban biodiversity with plant development and transformation projects for mutual progress.

Certain open areas on the premises are well suited for developing habitats for insects and birds in particular. Additional greenery, specifically native plant species, along edges and shoulders could increase biodiversity. Where possible, sunny areas are used as open wildflower meadows and maintained with extensive care accordingly. These are important stepping stone biotopes for insects such as wild bees, bumblebees, hoverflies and butterflies. Greenery planted on vertical surfaces and green roofs remain important options for optimally utilizing the limited space.

Maintaining the peregrine falcon territory in our plant is still a priority. We were pleased to see three peregrine falcon chicks in 2024 again.

Peregrine falcon during release after brief veterinary treatment following a flight accident

Green roof with wildflowers

Example for new wildflower areas

Plant walls with greenery

The plant has its own tree registry as well. Wherever possible, new plants and greenery are integrated into project planning. Because of the limited possibilities within the plant premises, Aurubis promotes biodiversity outside of the plant boundaries as well. For instance, we support the preservation of insects through educational work carried out by knowledgeable nature conservation associations at schools. A vehicle referred to as the Bombus is used for this purpose. The Bombus (Latin for bumblebee) is a converted environmental mobile that has been a fixed component of the environmental education work of the German Association for the Protection of Forests and Woodlands for 15 years. With its unique, boxy shape, the VW bus provides a great deal of space for exhibits and documents for different programs and offers.

Today, emissions at the Hamburg site have already reached a point where there is no negative impact on ecologically sensitive conservation areas. This is especially true when it comes to the acidification of soils and plants and the eutrophication of bodies of water. Aurubis' ecological footprint is improving continuously. The Hamburg plant significantly contributes to this success, providing important support to preserving biodiversity.

We prioritize native plant species when we plant new greenery. Because of the limited amount of space available, we will grow upwards in the future. We plan to spruce up suitable building facades with vertical gardens, improving their appearance and also creating new habitats for birds and insects.

Furthermore, the plant is a breeding area for a number of songbird species, such as the black redstart. Possible nesting areas in various niches of production buildings' facades are maintained if possible. The proximity to bodies of water provides food sources.

Commitment to the environment — Partnership for air quality and low-emission mobility

In 2012, the city of Hamburg, Aurubis and eleven other companies established the Partnership for Air Quality and Low-Emission Mobility. The objective is to reduce pollution, especially NO_x, resulting from individual transport.

To promote the use of bikes and public transport, a city bike station was set up at the Hovestrasse plant entrance in 2019. The intention is to encourage bike use for employees in their daily commutes between home and work or between home and subway or train stations. The station connects the plant to Hamburg's city-wide bike-borrowing system.

Moreover, Aurubis rents 40 lockable bike spaces each at the closest train station, Veddel, and the new train/subway station Elbbrücken. This provides employees with free bike parking, an option that allows them to travel quickly and conveniently from public transport stations to work.

In order to promote electric vehicles, a total of 150 charging stations were set up at the employee parking lots on Hovestrasse and the Müggenburger Hauptdeich. E-mobility for internal plant traffic is also being emphasized.

Due to the voluntary environmental and climate protection measures it implemented in 2024 again, Aurubis Hamburg is still recognized as an active member of the Hamburg Environmental Partnership and is distinguished for its exemplary environmental performance.

UMWELT PARTNER 2025

Environmental Program

A revised version of the Environmental Program, which is based on the internal target management system, has been in use since 2024.
The relevant environmental KPIs and assessments of the environmental measures are available in more detail in the respective chapters.

Target	Planned measures	Degree of implementation/date
Reducing emissions		
Ensuring values fall significantly below the target value for particulate matter Veddel 20VE of 6 ng/m³, even with increasing atmospheric inversions and dry weather conditions	Expansion of ridge turret suctioning *"Air — Immissions"*	Stage two under construction, commissioning 2025/26
Improving water pollution control		
Metal loads to water — 10 kg/a reduction in FY 2023/24 compared to 2020	Optimizing the wastewater treatment plant process parameters by improving the dosing strategy and through technical optimizations and online measuring technology	Initial testing of revised process parameters have been completed with positive results.
Reducing cooling water consumption by 10 % until FY 2025/26 compared to 2020	Switching cooling systems to circulation systems	The first improvements are apparent
Reducing energy consumption and CO_2 emissions		
CO_2 reduced by 2,000 t plant-wide in FY 2024/25	Feasibility study for heat recovery from the continuous casting plant's cathode shaft furnaces	Road map has been realized; initial testing of hydrogen use has been completed.
Waste reduction		
At least 3 tests of internal Venturi slime processing	Developing potential internal processing methods for Venturi slime	The hydrometallurgical approach will not be pursued further since this has not been successful thus far. The trials in top blown rotary converter 1 (TBRC1) demonstrated that the material can be fundamentally processed in TBRC1. Until the CRH project is implemented in the RWN, additional trials with Venturi slime should take place in TBRC1 three times per year to optimize the process. Operation scheduled to start in TBRC1 starting 2026
Reducing the amount of used emulsion to be disposed of from the rod plant by at least 20 %	Testing an ultra-filtration system followed by an investment decision	Testing was completed successfully.

Key figures for Aurubis AG, Hamburg site, in the 2024 calendar year

Developments in KPIs are explained in the text

Input	Unit	2022	2023	2024
Financial investments				
Investments in environmental protection	€ thousand	26,873	21,126	108,189
Other investments	€ thousand	168,520	182,606	169,771
Total investments	**€ thousand**	**195,392**	**203,731**	**277,960**
Raw materials				
Copper ore concentrates	t	1,000,836	1,188,874	906,676
Copper scrap/refining material	t	30,577	41,532	13,170
Other Cu-bearing raw materials	t	190,881	97,715[1]	164,974
Precious metal-bearing raw materials	t	14,519	10,999	6,295
Lead concentrate, scrap and waste	t	22,504	26,159	18,516
Other secondary raw materials (waste) for recycling	t	4,202	6,550	4,514
Total TC/RC-earning raw materials	**t**	**1,263,518**	**1,371,829[1]**	**1,114,145**
Operating supplies and materials				
Limestone, sand and additives incl. cyclone sand	t	105,715.7[1]	118,626.8[1]	73,145.5
Iron as an additive	t	16,618	13,201.6[1]	8,420.1
Total input materials	**t**	**1,385,851[1]**	**1,503,657[1]**	**1,188,942**
Input material per t of copper	**t/t Cu**	**2.9**	**3.4[1]**	**2.7**

[1] KPIs were corrected after the fact (relevance of deviation considered low).
The table may include slight deviations in the totals due to rounding.

Input	Unit	2022	2023	2024
Energy				
Electricity consumption	MWh	634,743	656,919	610,513
Additional electricity consumed to produce oxygen (informative)[1]	MWh	8,797	9,397	8,339
Natural gas	MWh	468,728	412,250	427,455
Coke	MWh	58,726	70,162	59,828
Other energy sources (landfill gas, fuel oil, diesel)	MWh	15,507	14,740	12,500
Total energy consumption (excluding internal production)	**MWh**	**1,177,705**	**1,154,071**	**1,118,635**
Energy consumption per t of copper[2]	**MWh/t Cu**	**2.5**	**2.6**	**2.5**
Use of regenerative/renewable energy				
Use of electrical energy to generate steam[3]	**MWh**	**20,970**	**12,381**	**31,651**
Water withdrawal				
River water	m³	56,112,223	59,349,421	48,272,507
Potable water	m³	366,685	392,814	468,517
Precipitation	m³	373,000	479,560	678,591
Total water withdrawal	m³	56,852,000	60,221,800	49,419,615
Water consumption (withdrawal) per t of copper	m³/t Cu	118	137	112
Area used at the Hamburg site				
Total plant area	m²	874,000	874,000	874,000
Buildings and paved area	m²	758,000 (equivalent to 87 %)	758,000 (equivalent to 87 %)	758,000 (equivalent to 87 %)

[1] The air compressors used to produce oxygen have been operated internally since 2021.
[2] Rounded to the first decimal point.
[3] Mainly used at times when there is a high supply of renewable energy in the grid.
The table may include slight deviations in the totals due to rounding.

Output	Unit	2022	2023	2024
Products				
Copper output	t	480,665	438,143	441,464
Sulfuric acid products as H_2SO_4 (from exhaust gas cleaning, standardized to 100 % acid)	t	859,990	947,714	719,613
Iron silicate stone (incl. granules)	t	782,635	738,967	534,178
Silver, gold and PGMs	t	1,273	1,227	1,226
Nickel sulfate	t	899	1,015	902
Other metal compounds	t	387	390	377
Lead	t	12,999	10,663	10,009
Total products	**t**	**2,140,834**	**2,138,119**	**1,706,867**

The table may include slight deviations in the totals due to rounding.

Output	Unit	2022	2023	2024
Waste				
Recycling	t	4,114	4,484	6,324
Disposal	t	8,199	6,483	6,499
Hazardous waste	**t**	**9,539**	**8,283**	**8,086**
AVV[1] 16 10 01* Washing water	t	3,744	2,321	2,660
AVV 10 06 06* Waste after off-gas treatment	t	2,664	3,066	2,275
AVV 10 04 04* Lead flue dust	t	–	1,201	1,084
AVV 12 01 09* Waste emulsion	t	–	1,354	973
Other	t	1,777[2]	1,695[3]	1,094[4]
Non-hazardous waste	**t**	**2,773**	**2,684**	**4,736**
AVV 15 01 03 Scrap wood	t	1,309	1,151	1,219
AVV 19 08 14 Sludge from water management	t	463	605	2,443
AVV 200301 Municipal solid waste	t	494	428	600
Other	t	506[5]	500[6]	474[7]
Total waste	**t**	**12,312**	**10,967**	**12,822**
Waste per t of copper output	**kg/t Cu**	**26**	**25**	**29**
Conversion into products	%	99.0	99.2	98.9
Construction waste (informative)	t	56,598	25,571	65,209
Total waste	**t**	**68,911**	**36,537**	**78,032**
Waste per t of input material	**kg/t**	**50**	**25**	**70**

[1] Waste List Ordinance (AVV).
[2] Comprises 24 waste code numbers (AVV).
[3] Comprises 23 waste code numbers (AVV).
[4] Comprises 20 waste code numbers (AVV).
[5] Comprises 9 waste code numbers (AVV).
[6] Comprises 8 waste code numbers (AVV).
[7] Comprises 10 waste code numbers (AVV).
The table may include slight deviations in the totals due to rounding.

Output	Unit	2022	2023	2024
Emissions				
Dust[1, 2]	t	324	34	24
Dust per t of copper	g/t Cu	664	77	54
Dust per t of copper equivalent	g/t Cu eq.	33	35	27
Copper per t of copper output	g/t Cu	10.8	12.6	8.5
Lead per t of copper output	g/t Cu	1.7	2.2	2.0
Arsenic per t of copper output	g/t Cu	0.5	0.7	0.4
SO_2	t	1,334	1,722	1,231
NO_x per t of copper output	g/t Cu	341	385	316
Direct CO_2 emissions (ETS, excluding diesel)	t	154,826	161,703	136,932
of which CO_2 from fuels	t	119,133	112,245	110,997
CO_2 from fuels per t of copper output	t/t Cu	0.25	0.27	0.25
Direct CO_2 emissions (diesel for vehicles)	t	3,584	3,295	2,804
Indirect CO_2 emissions from electricity consumption (incl. oxygen production)[3]	t	472,272	498,558	457,885
Metal discharge in water	kg	707	594	626
Metal discharge in water per t of copper	g/t Cu	1.5	1.4	1.4
Metal discharge in water per t of copper equivalent	g/t Cu eq.	0.74	0.62	0.71
Water discharge				
Direct discharge	m³	55,455,605	57,355,691	47,843,270
Indirect discharge	m³	37,937	63,149	41,594
Total water discharge	**m³**	**55,483,542**	**57,418,840**	**47,884,864**
Water discharge per t of copper output	**m³/t Cu**	**115**	**131**	**108**
Energy supply				
Supply of industrial waste heat to the city	**MWh**	**31,167**	**43,336**	**33,443**

[1] For dust content (metals), see the information provided in the "Air — Emissions" section.
[2] Figure also includes dust from fugitive sources.
[3] The supplier's CO_2 emission factor is taken as a basis.
The table may include slight deviations in the totals due to rounding.

Updated Aurubis AG Environmental Statement 2025

Lünen Site

The Lünen plant

Aurubis AG's Lünen plant is located on the southern edge of the city of Lünen, just one kilometer from the town hall, and is one of the world's largest copper recycling facilities.

The site was built and commissioned on undeveloped land between the Cologne-Minden railway and the Datteln-Hamm Canal in 1916 as a branch plant of Hüttenwerke Kayser AG in Berlin. After the loss of the Berlin plants and reconstruction after the end of World War II, the production facilities were continuously expanded and steadily modernized. After the then-Norddeutsche Affinerie AG acquired the majority of Hüttenwerke Kayser shares in 2000, the plant was initially integrated into the company structure and expanded to become the Group's recycling center. Today Aurubis AG's Lünen site is one of the largest secondary copper smelters in the world, with a production capacity of around 210,000 t of copper cathodes annually. On the 316,000 m² plant grounds, about 680 employees (including roughly 40 apprentices) produce copper anodes, copper cathodes, iron silicate sand, and a number of co-products *Fig. 3.1*.

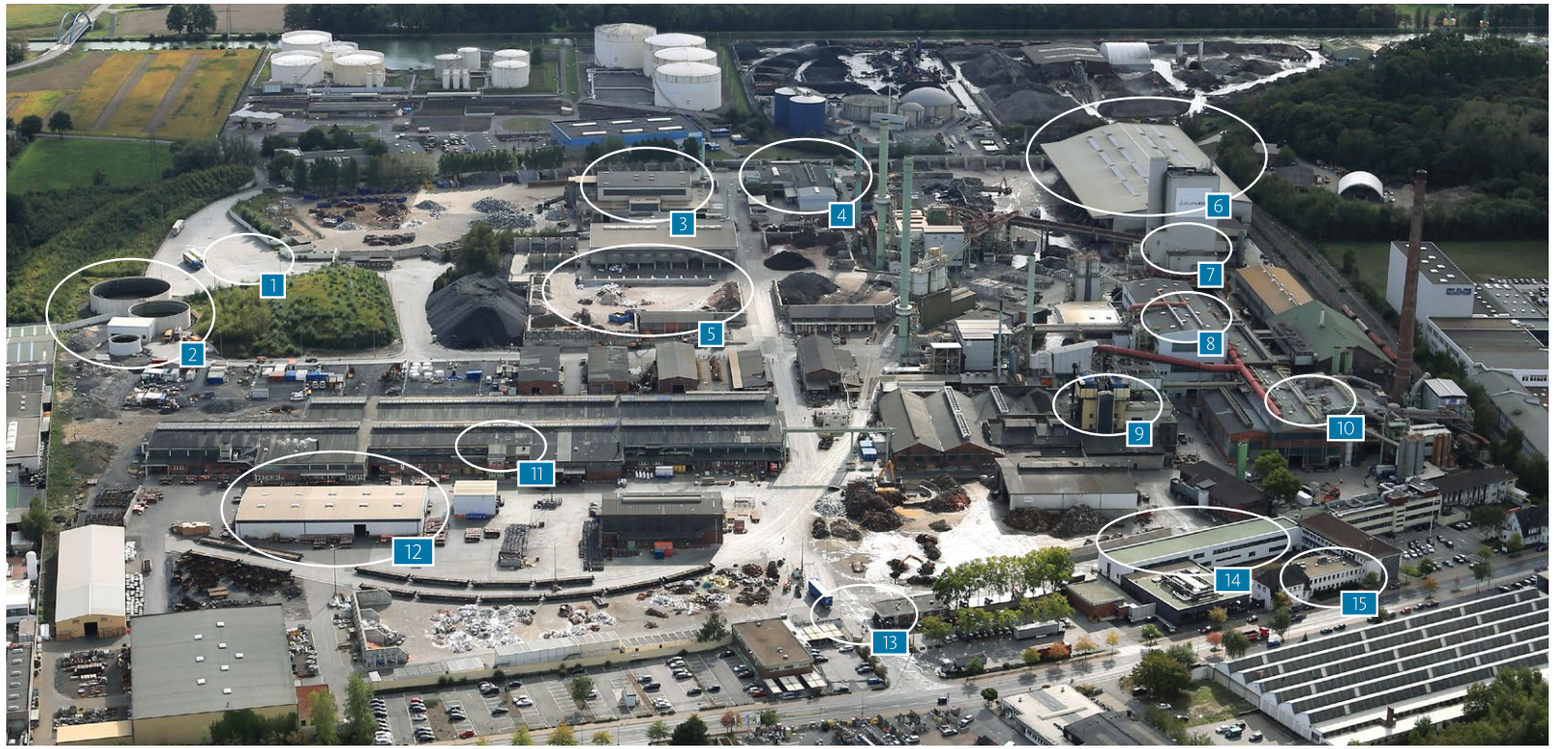
The processes at the Lünen plant

The Lünen site is a multimetal recycling site capable of processing highly complex raw materials in its own smelting and refining processes. Thanks to its options for flexibly using secondary raw materials, the Lünen plant can handle materials with complex compositions, such as pre-processed electrical and electronic scrap, old cars, and ashes from waste incineration in addition to traditional materials like copper and alloy scrap, slimes and industrial residues. The recycling process used in each situation depends on the consistency and chemical composition of the raw materials.

After the input materials are delivered (usually by truck), processing begins with sampling, followed by a material preparation step. Depending on quality and composition, the raw materials are crushed, then treated and separated in the material preparation plant or directly conditioned into input mixtures before undergoing a multi-stage metallurgical process.

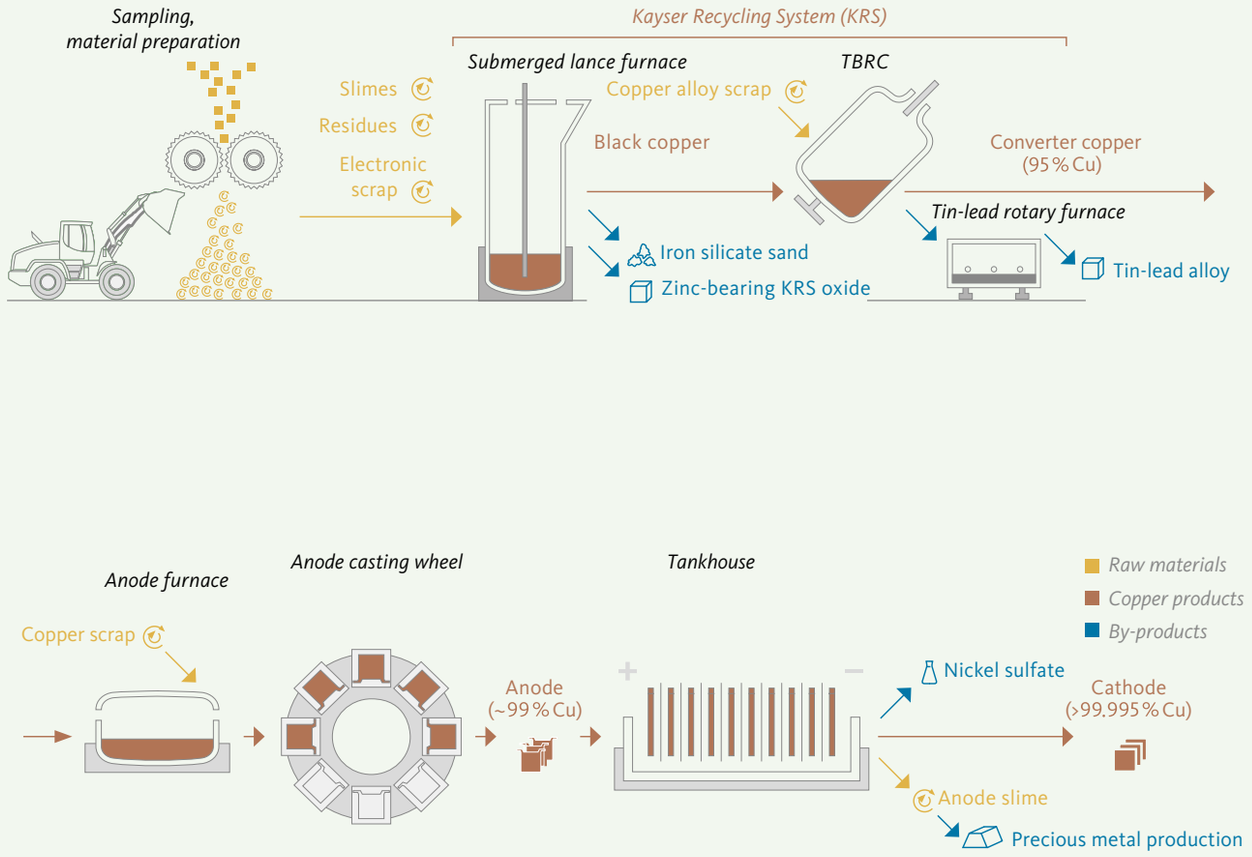
Pyrometallurgical processing starts in the Kayser Recycling System (KRS), which was commissioned in 2002 and gained a TBRC (top-blown rotary converter) in 2011 as part of the KRS-Plus project. The converter copper produced in the TBRC is refined together with copper scrap in the anode furnace and cast into copper anodes in a casting plant. These anodes are then refined electrolytically into copper cathodes — the site's final product. The tankhouse in Lünen processes anodes from other Aurubis sites as well *Fig. 3.2*.

Fig. 3.1: Overview of Lünen site facilities



1 South plant entrance with noise protection wall 2 Rainwater retention facility 3 Material preparation 4 Sampling 5 E-scrap preparation 6 Warehouse 4
7 KRS 8 TBRC 9 Leaching plant 10 Anode smelter 11 Copper tankhouse 12 Cathode warehouse 13 Kupferstrasse plant entrance 14 ATASI 15 Administrative building

Fig. 3.2: Multimetal recycling at the Lünen site



Zinc-bearing KRS oxide, iron silicate sand (slag granules), a lead-tin alloy, nickel and copper sulfate, and anode slimes are produced as by-products of multimetal recycling. At the Hamburg site, precious metals like gold and silver are recovered from anode slimes, together with a PGM1 solution. The ratio of copper cathodes to by-products is about 1:1, though the increasingly complex recycling raw materials are steadily shifting the ratio to more by-products with minor metals. No process-related waste accumulates.

The integrated management system for the environment, quality and energy

The Lünen site has been certified in accordance with the environmental management systems EMAS and ISO 14001 since 1997. The site's environmental management system, together with the management systems for quality, energy, and occupational health and safety, comprise the integrated management system (IMS). The IMS includes the requirements placed on the Lünen plant as an end processor of electrical and electronic scrap (pursuant to the CENELEC standard TS 50625-5), in part as a waste management facility (Circular Economy Act), and as an initial treatment facility (Electrical and Electronic Equipment Law, ElektroG).

The external audits annually carried out as part of the IMS certification involve reviewing the environmental data, the fulfillment of legal provisions, and the effectiveness of the operating processes. Furthermore, the management systems' efficacy is assessed annually through IMS audits. The results of the company environmental audits and internal audits are compiled in reports and discussed with the plant managers during the annual Management Review. The management systems are evaluated to ensure they are suitable, appropriate and effective and to assess whether the requirements for the integrated management system are being implemented successfully.

[1] PGM = platinum group metal.

Targets and tasks of the environmental management system

The production processes are securely managed through the environmental management system at the Lünen plant. The targets and measures are defined and their implementation is monitored continuously. Environmental management includes the documentation of operational processes, the execution of internal audits, routine recordings, and site inspections.

The environmental management system ensures that the applicable legal requirements are fulfilled with respect to environmental protection. Furthermore, it drives continuous improvement through product and process design that takes the environment and occupational safety into account. Saving energy is also an essential element of environmental protection, supported by the ISO 50001-certified energy management system. This system depicts energy flows transparently and identifies possible optimization potential.

The management systems and organization of the IMS are described clearly and extensively in a handbook available to employees. Consequently, the IMS handbook and associated process and work instructions do not just address environmentally relevant issues and incident prevention, but also quality assurance measures, energy management, and occupational health and safety. This management handbook ensures that all activities that concern environmental aspects and occupational safety issues are planned, managed, monitored and continuously improved with due regard to legal requirements.

Employees are briefed on newly emerging and changing legal requirements in regular environmental protection training courses. Employees can use the operational improvement system to proactively contribute suggestions and ideas for optimizing processes and improving energy efficiency.

The environmental management systems in Lünen support measures that fulfill the new Aurubis corporate strategy as well, which defines new and ongoing targets related to people, the environment, and the economy for 2030.

To guarantee compliance with these targets, uniform environmental KPIs are regularly established and reviewed for the Group, as well as verified by external auditors. Examples of these KPIs include specific metal emissions to air and water.

Environmental management organization

Aurubis AG operates facilities requiring a permit in accordance with Section 52b of the Federal Immission Control Act and Section 53 of the Circular Economy Act. As such, the company's Executive Board or an appointed Board member is responsible for compliance with environmental protection and radiation protection regulations.

The officer functions at the Lünen site, for example:

- Immission protection and accident prevention
- Waste management
- Radiation protection
- Specialist company under the Water Management Act
- Occupational safety

are carried out by Lünen plant employees.

A Group employee located in Lünen fills the role of hazardous materials officer. Corporate Environmental Protection centrally oversees the tasks related to implementing the European chemical regulations REACH and CLP (Classification, Labelling and Packaging).

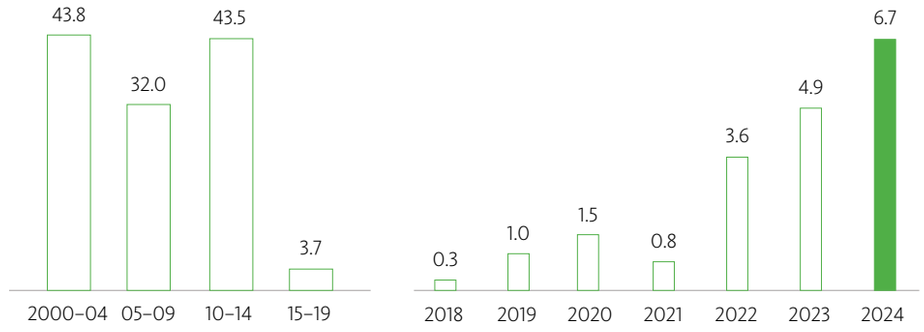
Environmental aspects and performance

Investments in environmental protection measures continue to be of crucial importance in Lünen. More than € 140 million in total was invested in environmental protection from 2000 to 2024 *Fig. 3.3*.

Following the acquisition of Hüttenwerke Kayser in 2000, Aurubis AG set new standards through extensive investment projects with new and improved facilities, such as the Kayser Recycling System (KRS) with an investment volume of about € 40 million.

The emission reduction concept for the period 2005 to 2009, which was agreed upon with the relevant governmental authorities, was initially estimated at around € 10 million and was later increased by further investments of € 25 million in additional measures (for instance, reducing dust emissions from KRS input materials in warehouse 4 and extensively paving storage areas).

Fig. 3.3: Capital expenditure for environmental protection measures at the Lünen site[1]
in € million



[1] The data relates to environmental investments per fiscal year. Single years are provided for readability, for example 2024 for fiscal year 2023/24.

Between 2015 and 2019, process optimizations were the primary focus at the Lünen plant. At the moment, more investments are planned for optimizing existing facilities (those used for input material storage and handling, for example) and to possibly build new ones, with the goal of achieving additional improvements such as reducing fugitive emissions.

Air — Emissions

Emissions from directed sources (chimneys) are monitored with continuous measuring devices that transfer the emissions data. In addition to dust, substances like sulfur dioxide, nitrogen oxides, hydrogen chloride, hydrogen fluoride, and mercury are measured continuously depending on relevance. Other off-gas and dust components are measured manually.

The emission limits for air pollutants are stipulated in the TA Luft (Technical Instructions on Air Quality Control), with the limits in the permit requirements for some facilities falling well below the TA Luft standards. The limit values from the TA Luft relevant for Aurubis are featured in chapters 5.2.2, 5.2.4, 5.2.5, 5.2.7 and 5.4.3.3.1. Emissions to air comply with the limit values in the permits, or fall significantly below them in some cases. The same applies to additional substances listed in the permits, such as NO_x, HCl and HF.

https://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_18082021_IGI25025005.htm

The long-term goal of the Lünen plant is to achieve a continued reduction in emissions despite the input materials, which are becoming ever more complex. The difficulty in this regard is that the measured levels are already far below the detection limit in many areas, which could also be a reason for emission fluctuations in the calibration of the measuring devices. Because the emission level is already very low, significant reductions like those in the past cannot be expected through individual technical measures anymore. The goal is to continue maintaining this very low level and to improve it wherever possible.

Emissions of dust and especially dust components (copper, lead, arsenic, etc.) have been considerably reduced at the Lünen site in the past several years due to mitigation measures. The graphic presented here also incorporates the fugitive emissions including storage and handling. In 2024, dust emissions were again at the same low level of the past several years *Fig. 3.4*.

Due to new, specific reduction targets set throughout the Group as part of the revised Sustainability Strategy, in the future, the associated reporting of specific emissions will no longer be based on input material, but rather on a multimetal indicator — the copper equivalent. The approach and calculation method are described in detail in the Group section of the Environmental Report in *Targets and successes in environmental protection*.

Reporting on dust emissions in the Lünen plant will remain based on input material volume to show medium- and long-term trends. *Fig. 3.4–Fig. 3.7*.

The Lünen plant uses complex recycling materials. As technical devices become smaller and smaller, and the number of processing stages increases correspondingly, copper production is lower, but there are more by-products per ton of material input. As a result, the new multimetal indicator provides an optimal depiction of the Lünen plant and its complex input materials since it includes the value created from all metal categories.

In 2020, an innovative method for recording fugitive emissions using drones was used for the first time in close collaboration with the University of Düsseldorf. Drones outfitted with dust measuring devices fly around the plant buildings and provide live evaluation data on the existing dust pollution. This method enables precise measurement of current fugitive emissions. This has helped identify potential emission sources in the anode furnace area. For instance, a building adjoining the boiler of the anode furnace area was better dust-proofed and a roof section in the anode furnace casting area was equipped with a water sprinkler for dust abatement. In the future, drones will be used to measure fugitive emissions as needed.

Fugitive emissions in particular have been determined or calculated in accordance with the methods used at the Hamburg site since 2004 *page B-47*.

Emission measurements with drones at the Lünen plant

Fig. 3.4: Dust emissions at the Lünen site
Dust emissions in g/t of input material and in g/t of copper equivalent

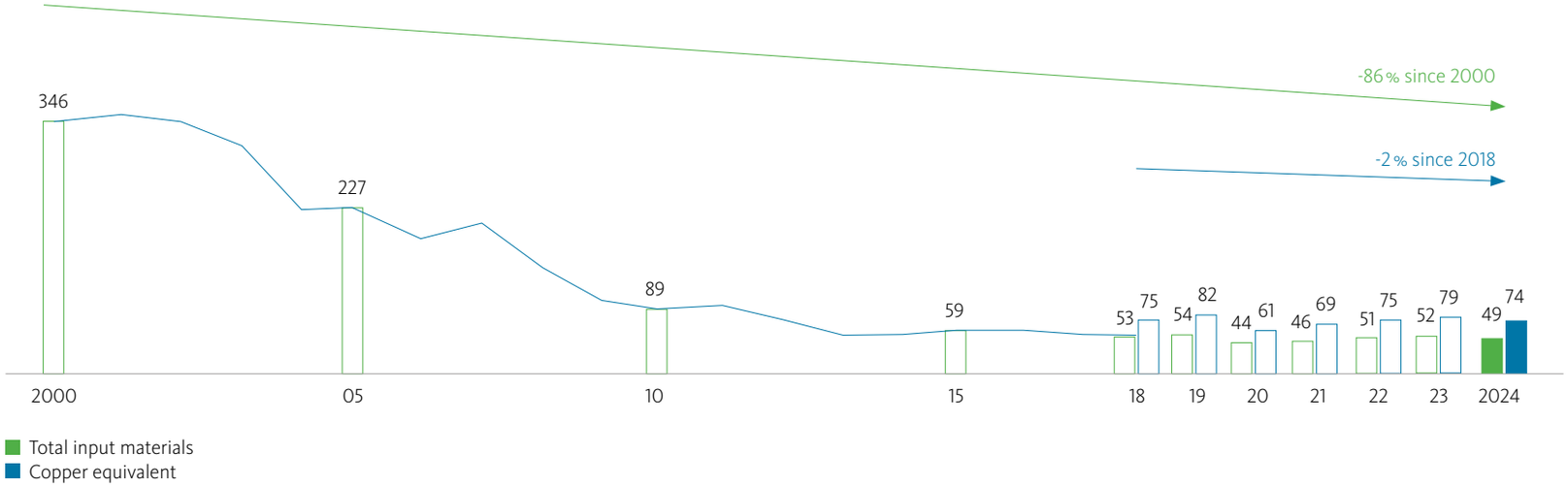


Fig. 3.5: Copper emissions at the Lünen site
Copper in g/t of input material

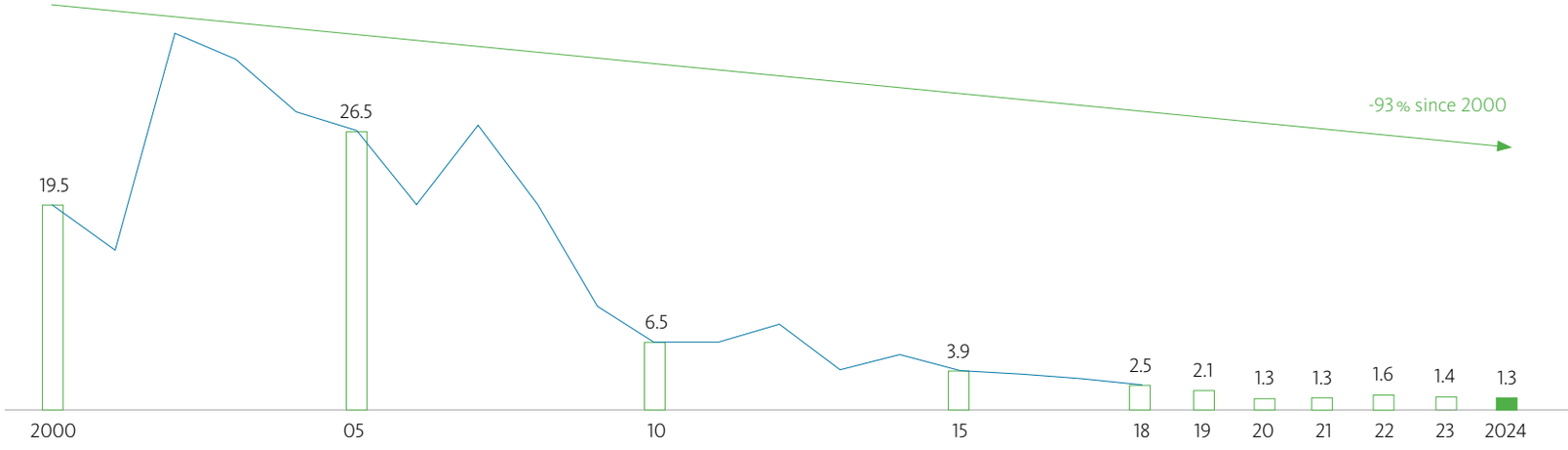


Fig. 3.6: Lead emissions at the Lünen site
Lead in g/t of input material

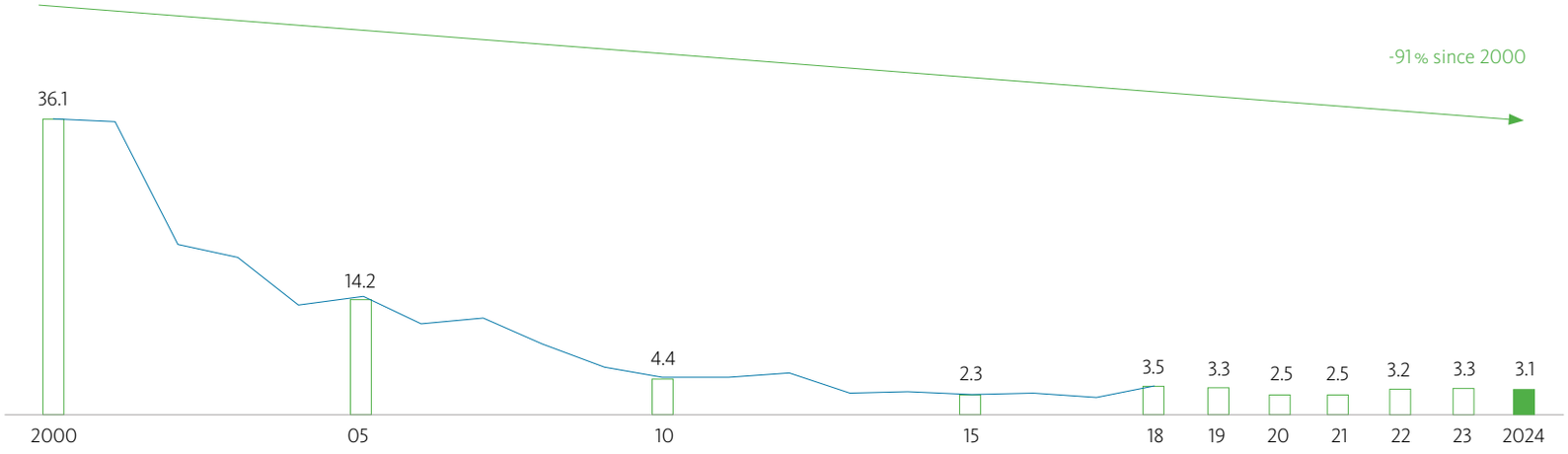
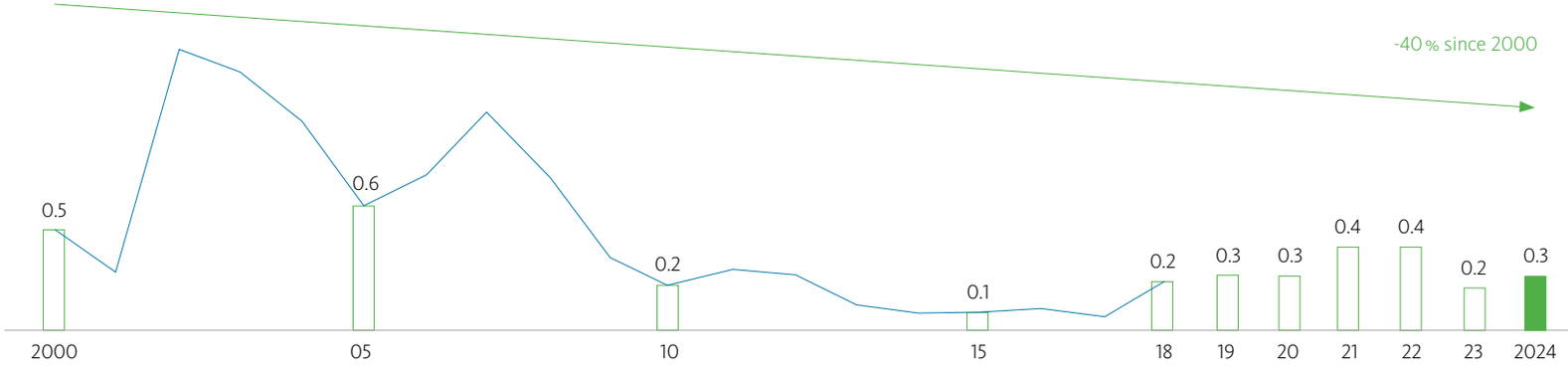


Fig. 3.7: Arsenic emissions at the Lünen site
Arsenic in g/t of input material

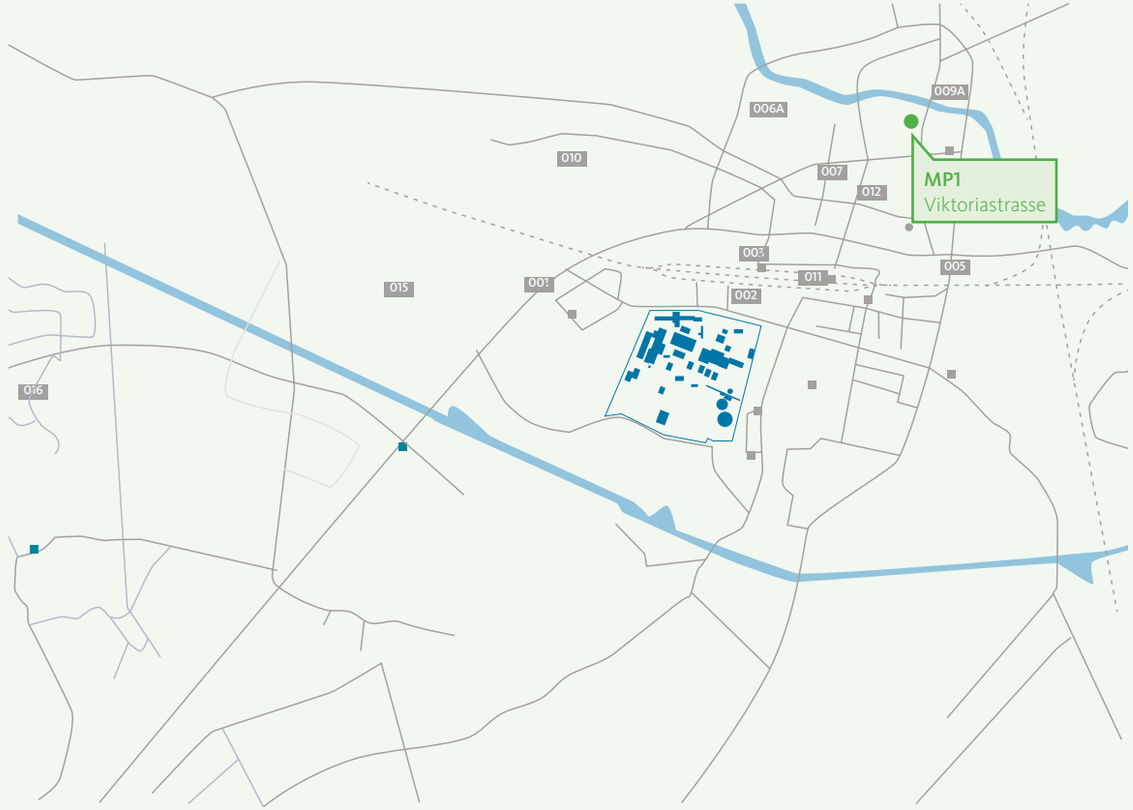


Air — Immissions

To measure the immissions of dust precipitation including metallic components, the LANUV (NRW State Agency for Nature, Environment and Consumer Protection) operates a network of currently 11 "Bergerhoff" measuring points in the area surrounding the Lünen plant *Fig. 3.8*.

The closest LANUV measuring station for recording concentrations of particulate matter (PM10) is located on Viktoriastrasse (northeast of the plant). The position corresponds to that of the plant's calculated immission maximum *Fig. 3.9*.

Fig. 3.8: Locations of immission measuring points near the Aurubis plant in Lünen



"Bergerhoff" measurement points in Lünen
- Buchenberg
- Kleine Bergstrasse
- Bergstrasse 48
- Bebelstrasse/Süggelbach

006A Rail line/mosque
007 Lünen South freight yard
009A B 236/Lippebrücke
010 Im Wiesengrund
011 Builders' association/building yard

012 Rail line/Kantstrasse
015 Im Engelbrauck/north side
016 Im Siepen

Aurubis plant building

Source: LANUV

In the last ten years, there has been a significant reduction in dust immissions, primarily dust components. While isolated deposition values of the TA Luft were exceeded in some cases, the distribution of the deposited substances resulted from a number of specific emission parameters, such as meteorological conditions and properties of the substances, so immissions and depositions cannot be directly attributed to individual emitters. With regard to the immission situation in the Kupferstrasse industrial area, Aurubis communicates with the relevant governmental authorities and the other companies on site to identify and implement suitable reduction measures. Consequently, the Lünen plant reassessed the situation in an open dialogue with the authorities in early 2023 and planned additional emission reduction steps in conjunction with growth projects, including closing the roof of the KRS building, installing an off-gas cleaning system for optimal suctioning within the scope of the projects, cleaning and directing emissions through a directed source, closing the ridge turrets of the anode casting hall, and optimizing slag handling in the slag breaking area.

The measurements of air quality for suspended particulates and their components indicate that the levels are significantly and consistently below the limit values for both PM10 and lead, as well as below the EU target values for arsenic, cadmium and nickel *Fig. 3.9–3.13*. The LANUV measuring point at Niederaden is listed for comparison; it served LANUV as a reference measuring point without industrial impact until 2023.

The LANUV measuring program investigating leafy vegetables from small gardens in Lünen near the plant was initially suspended and started up again in 2024 as part of continuous environmental monitoring.

Fig. 3.9: Immissions of particulate matter (PM10) compared to the plant's calculated immission maximum
Comparison of dust immissions in µg/m³ at the Lünen site, Viktoriastrasse and Niederaden

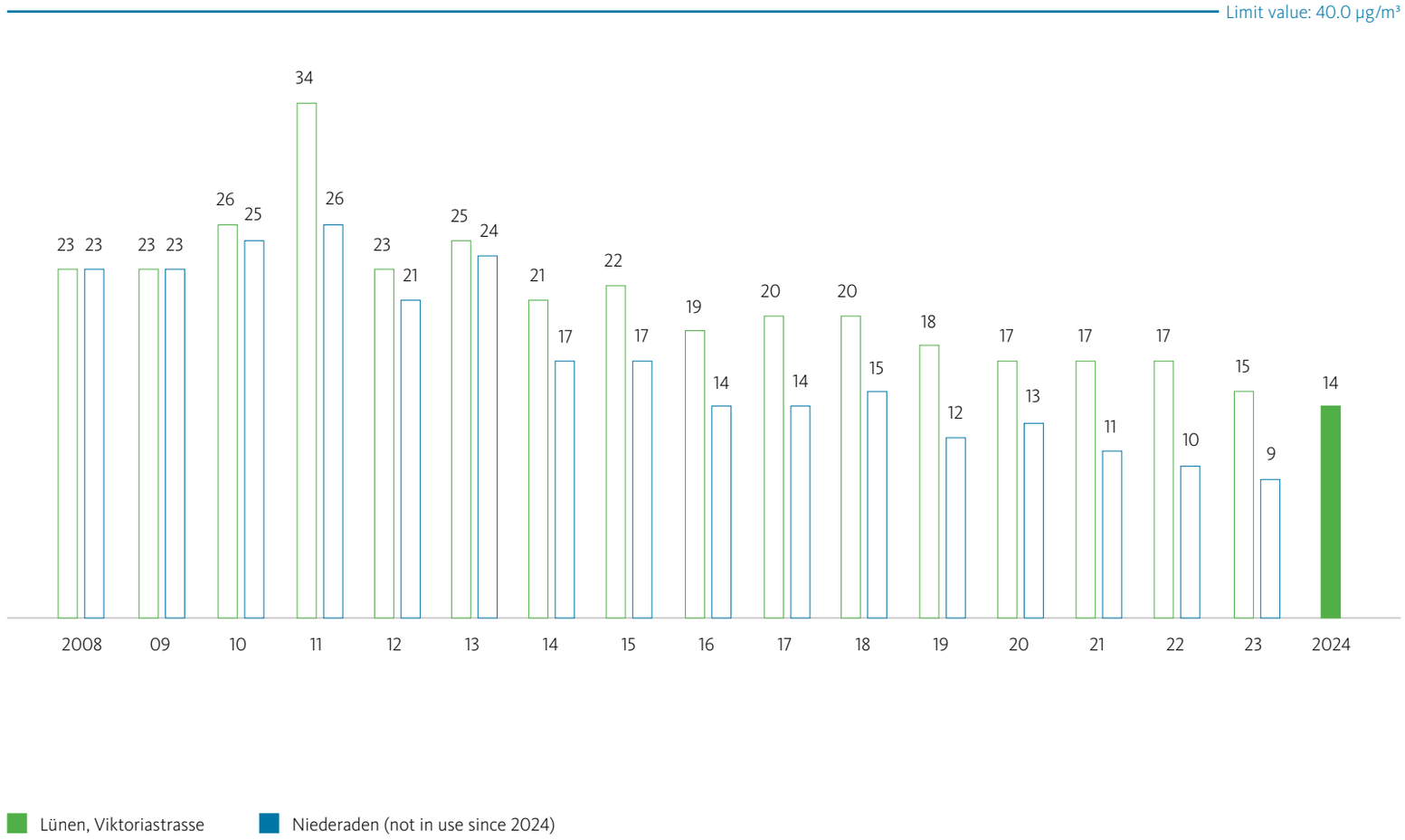


Fig. 3.10: Lead
Lead immissions in µg/m³

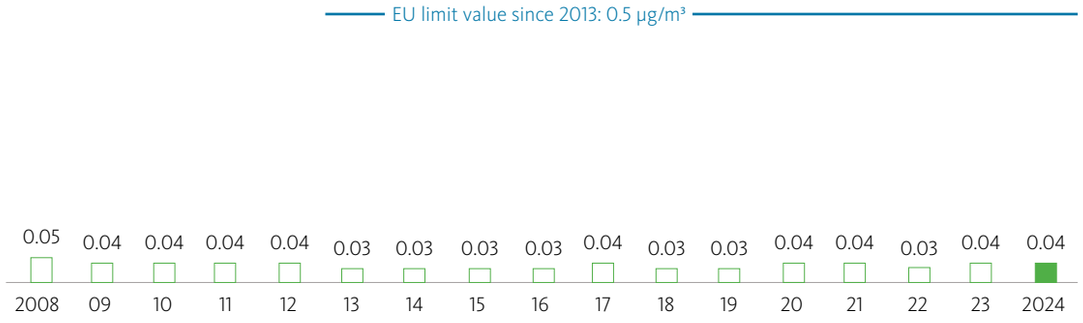


Fig. 3.11: Cadmium
Cadmium immissions in ng/m³

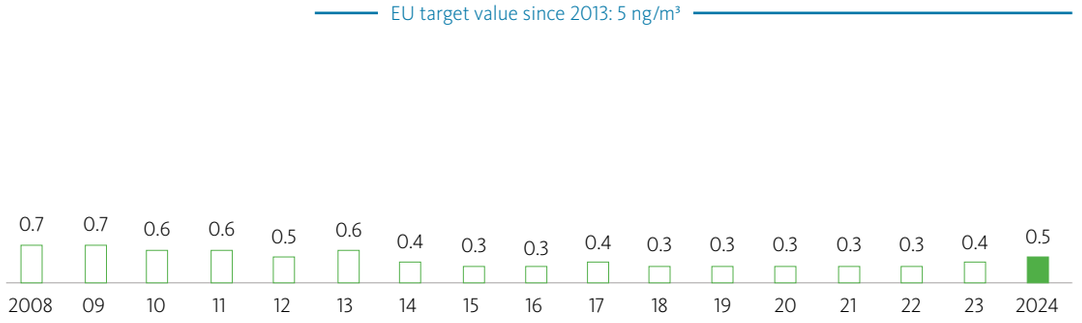


Fig. 3.12: Arsenic
Arsenic immissions in ng/m³

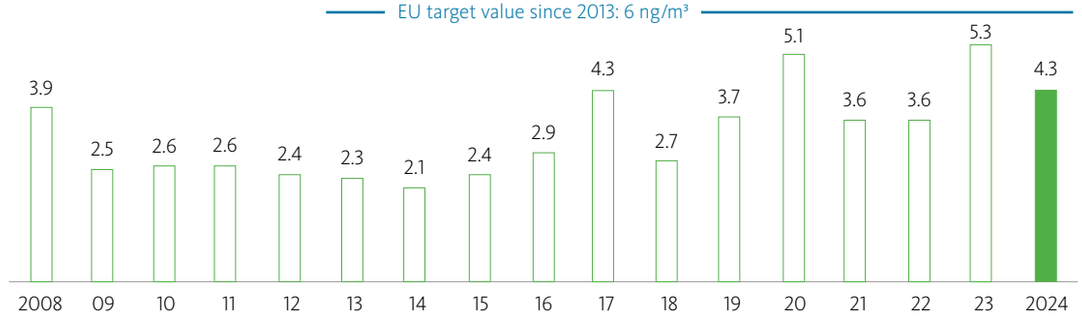
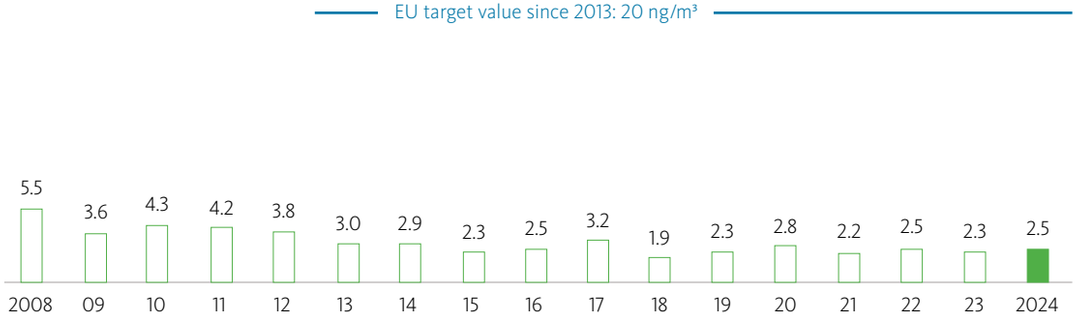


Fig. 3.13: Nickel
Nickel immissions in ng/m³



Water

Water is used in the Lünen plant for various cooling purposes, including anode cooling and slag granulation, as feed water for the steam boiler, and increasingly for operating several sweepers, as well as sprinkling driveways, plant/storage surfaces, and input materials. Particularly these latter measures to reduce dust emissions make it difficult to significantly reduce water consumption.

To conserve water resources as much as possible, the Lünen site operates a facility for rainwater retention, treatment and utilization, which covers a large part of the internal cooling and process water needs with collected rainwater.

The rainwater volume used in this way has increased continuously during the past several years, and water consumption from the public water network has decreased accordingly. In 2024, just under 239,000 m³ of process water was used for internal purposes. Overall, the rainwater-use project has significantly surpassed the projected quantities. In 2024, water consumption and wastewater discharge were at a good level similar to the past years *Fig. 3.14 and Fig. 3.15*. There were no notable incidents in 2024 that had any significant impact on the site's water consumption. Water withdrawal and release depend on different factors, however, including weather-related factors (e.g., precipitation volumes and evaporation) and production-related factors (e.g., increased evaporation in production processes and measurement deviations), and can fluctuate as a result.

For the coming years, additional optimizations are planned for internal water use, such as reviewing the further treatment of internal process water (reverse osmosis, evaporation). The goal is to use water internally to the greatest possible extent and prevent the discharge of process water into the public sewer system.

Fig. 3.14: Water consumption at the Lünen site
Water consumption in m³/year

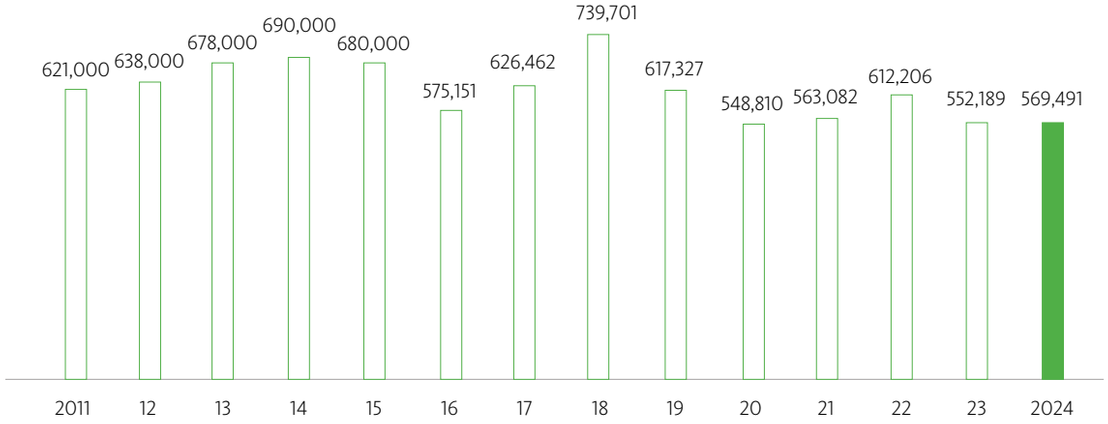
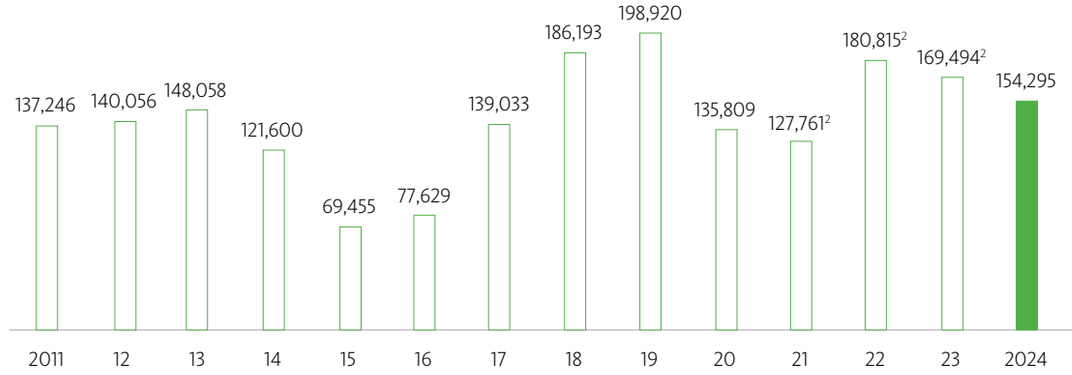


Fig. 3.15: Wastewater discharge at the Lünen site
Wastewater discharge in m³/year[1]



[1] The wastewater discharge from the rainwater retention has been recorded since 2017; as a result, the 2015 and 2016 figures are substantially lower than in comparable years.
[2] KPI was corrected retroactively.

Soil — Remediation measures
Since the plant opened in 1916, facilities producing non-ferrous metals have been operated continuously at the site. In conjunction with war damage, this led to soil pollution in the past.

On the basis of comprehensive tests, a remediation plan was developed and coordinated with the responsible authorities. In late 2014, a remediation agreement was signed with the Unna district describing the further agenda and the steps planned to remediate the soil and groundwater at the Lünen site.

The remediation concept includes encapsulating the contaminated area with the help of a sealing wall, as well as a drainage facility that requires the discharged water to be purified. Part of the sealing wall and some extraction wells have already been completed in the run-up to construction measures. An alternative concept is currently being drafted and will then be coordinated with the authorities.

The oil damage remediation system, the first measure implemented to remediate an oil phase in a former oil storage area, went into regular operation in 2020. This system cleans the extracted groundwater, which is then used as internal process water; the separated oil phase is disposed of externally by a specialized company that operates the system for Aurubis. In addition, the remediation progress is monitored externally with regular reports to the authorities.

For the other remediation measures, the goal is to use the remediated water in a similar way to sensibly combine remediation with further resource conservation.

Soil — Preventative measures
For decades now, preventative measures have been developed in order to eliminate future contamination of the soil. They are primarily related to the facilities dealing with materials hazardous to water, such as the tankhouse and oil storage. Furthermore, the storage spaces for input materials are being designed so that not even traces of deposits or components of input materials hazardous to water can end up in the soil.

Noise and odors
Noise protection measures take high priority in the conception of new facilities in particular. The goal is to ensure that any additional noise pollution in the area, as defined by the TA Lärm regulation, is only marginal, i.e., the levels should be at least 10 dBA lower than the TA Lärm immission reference values. This requirement was fulfilled in the last few years in all projects, and noise reduction measures are continuously carried out at existing facilities as well.

There were few noise complaints in 2024. For those that were attributed to sources on the Aurubis plant premises, the sources were immediately remedied. No limit values were exceeded in any measurable way. Eleven noise complaints were lodged in the course of 2024.

Biodiversity
Aurubis AG Lünen's plant premises are adjacent to agricultural land and are just a few kilometers from multiple Natura 2000 nature conservation areas (In den Kämpen, Cappenberger Wälder, and Lippeaue). Respecting and promoting biodiversity are therefore high priorities for us. For example, Aurubis has reviewed larger expansion projects such as the KRS-Plus project with extensive FFH[1] assessments in order to identify possible impacts on biodiversity. In smaller projects in the plant and in the neighborhood, we continue to take active steps to promote and preserve biodiversity — such as by planting greenery on plant surfaces that are not in use (noise protection wall).

Waste
The waste from the Lünen plant mainly results from packaging from delivered materials, from construction measures, and from spent furnace lining from the KRS, anode furnaces, etc. The externally marketed contingents of the material preparation plant, such as aluminum for continued recycling, are also inevitably among the waste from the site, as they do not lose their waste properties through processing. In the meantime, sorting in the facility has become nearly homogeneous, making it possible to deliver all contingents completely as raw material for recycling to the respective industries for several years now.

A total of 367 t of hazardous waste accumulated in 2024, mainly spent furnace lining material. All of this waste was sent for recycling.

Additionally, a central waste collection point began operating in 2023. This centralization allows the waste streams to be channeled better, prevents impurities, and lowers waste costs. In addition to the information shown in *Fig. 3.16*, the table of KPIs in the Appendix provides a detailed breakdown of hazardous and non-hazardous waste streams.

[1] Flora Fauna Habitat Directive (EU Habitats Directive).

Fig. 3.16: Waste generated at the Lünen site

	Unit	2019	2020	2021	2022	2023	2024
Non-hazardous waste	t/year	4,842	19,712	8,944	5,206	4,045	4,689
Hazardous waste	t/year	458	402	329	372	348	367
Construction waste	t/year	9,639	3,015	14,638	58,349	36,256	23,633
Total waste volume, incl. construction waste	**t/year**	**14,939**	**23,129**	**23,911**	**63,725**	**40,649**	**28,689**

Energy and climate protection

Energy is required first and foremost for the metallurgical processes (primarily heating oil and natural gas), as well as for the tankhouse (electricity). Steam or thermal energy for leaching and electrolysis is mainly produced in the waste heat boilers of the KRS submerged lance furnace and anode furnace. There are also two auxiliary boilers primarily fueled with natural gas.

Since 2015, a two-stage condensation turbine has been in operation to produce electricity for internal use from waste heat steam through cogeneration. The steam from the process waste heat is initially depressurized from about 18 bar to 5 bar in the first turbine stage. Steam is removed for thermal use and the remaining volume is then depressurized to 0.1 bar in the second turbine stage. Turbine capacity for captive power generation was around 9.3 GWh in 2023. It should be noted that the turbine was not online for a longer period of time from September 2023 to January 2024 due to overhaul and repair work. An additional estimated 4 GWh would have been generated had this not been the case.

Developments and background on the use of primary energy sources:

- The plant's total energy consumption totaled 508 GWh in 2024, close to the 500 GWh mark and roughly equivalent to consumption in 2020/21 prior to the tankhouse overhaul. The primary influence:
  - Full tankhouse operation following the completed overhaul (increase of about 13 GWh in electricity use compared to previous year).
- Continued high input of energy-intensive, complex raw materials such as shredder materials and residues.

The electricity required for environmental protection measures remains unchanged at roughly one-third of total electricity demand.

The site's absolute energy demand has been relatively constant for ten years, with the input of energy-intensive, complex raw materials increasing at the same time. At 349 GWh in 2024, the primary energy input is around the five-year average. At about 161,000 t, direct CO_2 emissions remained at the prior-year level. Pursuant to DEHSt standards, the organic components in the raw materials still contribute more to the site's CO_2 emissions than the main energy source, heavy fuel oil.

Copper cathode output rose from about 140,570 t in 2023 to 165,106 t. The number of copper anodes delivered to the Hamburg site decreased by 72 %. The goal of the Lünen site is still to push the use of complex raw materials, which require more energy-intensive processing.

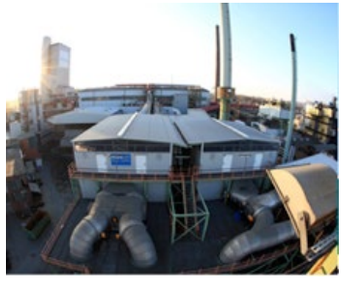
Fig. 3.17: Energy consumption[1] at the Lünen site

	Unit	2017	2018	2019	2020	2021	2022	2023	2024
Primary energy consumption	MWh	391,679	360,990	337,970	352,437	352,519	339,461	346,889	349,142
Secondary energy consumption	MWh	165,117	164,593	155,067	163,553	153,145	155,021	148,584	158,641
Total energy consumption	MWh	556,796	525,583	493,036	515,990	505,664	494,482	495,473	507,783
Energy consumption per ton of copper output	MWh/t Cu	2.89	2.73	2.79	2.83	3.00	2.69	2.98	2.86

[1] Calculated using DEHSt (German Emissions Trading Authority) standards.

Fig. 3.18: Breakdown of energy consumption at the Lünen site

Total consumption
158.6 GWh
(2023: 150.8 GWh)



- 41.9 % Tankhouse 66.4 GWh (2023: 58.0 GWh)
- 22.7 % Production 36.0 GWh (2023: 34.0 GWh)
- 33.1 % Environmental protection 52.5 GWh (2023: 56.0 GWh)
- 2.3 % Administration, other 3.7 GWh (2023: 2.4 GWh)

Environmental protection facilities are very energy intensive; Aurubis uses more than 30 % of the electricity at the Lünen site for environmental protection measures. As part of required emissions trading, the primary and secondary energy quantities consumed and the resulting CO_2 emissions are also externally certified and validated annually.

Fig. 3.19: Direct CO_2 emissions at the Lünen site

	Unit	2017	2018	2019	2020	2021	2022	2023	2024
Direct CO_2 emissions	t/year	186,544	169,415	163,572	162,166	164,854	156,794	161,596	162,777
Biogenic CO_2	t/year	324	300	295	313	379	334	295	386
CO_2 subject to DEV 2020[1]	t/year	183,839	166,918	161,113	159,739	162,276	154,294	159,218	160,337

[1] 2020 Data Collection Regulation for the third emissions trading allocation period.

Fig. 3.20: Energy consumption at the Lünen site
in MWh/t of copper output

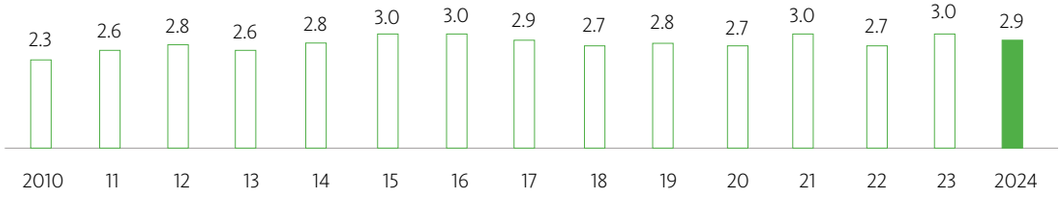
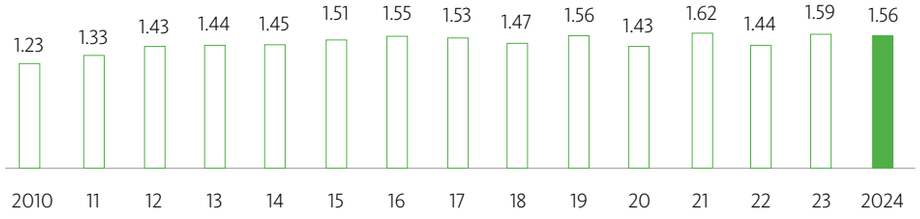


Fig. 3.21: Direct CO_2 emissions at the Lünen site
in t CO_2/t of copper output



Sustainability

Aurubis AG is dedicated to treating the environment and limited natural resources with care as part of its sustainability targets. Furthermore, long-term company success is to be secured through responsible business practices and stable growth. Aurubis AG has also pledged to reduce its CO_2 footprint by 50 % for Scope 1 and 2 emissions by 2030. ISO 50001:2018 requires consideration of climate risks and CO_2 emission reduction in energy management to counter climate change and sustainably boost energy efficiency. This is presented in a risk analysis that takes into account the impact of climate change on the plant.

These Group targets are broken down according to the respective site. As a secondary copper producer, the Lünen site faces a particular challenge. Around 50 % of the site's CO_2 emissions arise from the complex secondary materials used as input materials. More efficient pre-treatment and improved sorting lines can be used to initially convert some "unavoidable" CO_2 emissions into "avoidable" CO_2 emissions. The 50 % target can also be achieved in Lünen by replacing fossil fuels such as oil and gas with green energy sources and planning and implementing energy projects such as the expansion of photovoltaics and the construction of a steam storage facility at the site.

Audits and inspections by governmental authorities

The following environmental inspections were carried out by the relevant governmental authorities in 2024:

- IED[1] plant inspection focusing on the acceptance of the ultra high temperature hydrolysis (UHTH) plant permitted September 18, 2023 (file number: 900-0877505-0001/ IBG-0002-G 59/22), December 16, 2024.

- Hazardous incident inspection pursuant to Section 16 in connection with Section 17 (2) of the 12th Federal Immission Control Act on November 26, 2024.

The inspections were completed without any deviations. The reports are available online on the Arnsberg District Council website.

Indirect environmental aspects

Nevertheless, the delivery of most input materials and auxiliary materials with trucks cannot be avoided. The main reason is that the type of delivery is the supplier's choice. About 70 % of deliveries arrive through the "Buchenberg" entrance, which is completely located in an industrial area of the Lünen city harbor and is separated from residential areas with an effective noise protection wall. An increase of deliveries by rail via the side track at the plant is planned for the future.

Emergency measures and crisis management

Because of the type and quantity of materials handled, the Lünen site is subject to what are called the expanded obligations of the German Hazardous Incident Ordinance. Aurubis therefore developed a comprehensive safety report together with external experts and in close coordination with the responsible governmental authority, in which all incident scenarios are addressed and concrete safeguards are derived from them. The safety report is revised regularly and is adjusted and expanded to reflect the results of hazardous incident inspections. The hazardous substances register indicates the locations of these substances in the plant as well as potential incident scenarios.

The Lünen plant's incident information is provided to neighbors near the plant and can also be accessed online on the Aurubis website at any time. A review and update of the information provided to those living near the plant were scheduled for early 2025.

There were no incidents or malfunctions with significant environmental effects within the definition of the Hazardous Incident Ordinance at the Lünen plant during the reporting period.

[1] Industrial Emissions Directive.

Environmental Program

The targets set in the context of the Environmental Statement 2024 were reviewed to determine the extent to which they had been achieved and implemented.
Discussions with employees, training, audits and quality circles served as a basis for discussing and evaluating the environmental protection measures, as well as developing a new environmental protection program for 2025. The relevant environmental KPIs and assessment of the environmental measures are available in more detail in the respective chapters. The results are presented in the following Environmental Program.

Target	Planned measures	Degree of implementation/date
Air pollution control		
Concept for better dust control in storage areas throughout the entire plant	Setting up new Legio walls, boxes with slanted roofs, semi-automatic water sprinklers with the help of central technical containers and various water sprinklers and misting machines	The concept was developed and presented to the governmental authorities. Implementation began in 2023 and is scheduled to be completed in 2025
Reducing emissions and improving odor immissions in the plant surroundings	New filter in sampling with extraction ring in the sampling hall	The filter was commissioned in 2023
Water pollution control		
Optimizing wastewater flows	Separately treating sanitation water, improvement in the ratio of used surface water to drained surface water close to 100 %	The previous targets were achieved and the water usage concept to prevent unused process water from being discharged was developed. A schedule of the preliminary inspections has been drawn up. Next steps: » Pump trials in 2025 and treatment process tests.
Waste management/polluted areas		
Renaturation of the internal, defunct blast furnace slag (HOS) landfill	The historic HOS landfill has been partially remediated. The remaining part of the landfill has been secured and a restructuring plan is being drawn up	The safety measures were completed at the end of March 2024. Restructuring is targeted for the end of 2027
Energy optimization		
Enhancing energy efficiency	Developing an assessment basis that takes the following aspects into account: » Form of energy » Raw material structures » Raw material availability » Raw material composition (complexity) » Price volatility	The Energy Performance Indicators (ENPIs) are reliable and sound. In the coming years, standards-based assessment benchmarks will be introduced for the entire process in order to better monitor sustainable development
Development of a steam storage facility for optimized use of steam	The goal of steam storage is to minimize energy losses and optimize the supply of process steam for the boilers and plant facilities	The project is underway with completion targeted for 2025.

Key figures for Aurubis AG, Lünen site, in the 2024 calendar year

Developments in KPIs are explained in the text

Input	Unit	2022	2023	2024
Raw materials				
Recycling raw materials	t	336,862	326,112	313,485
Blister, etc.	t	12,549	10,728	7,972
Copper anodes from other Aurubis sites	t	5,394	1,480	20,215
Bleed	t	44,582	44,115	42,605
Total raw materials	**t**	**399,387**	**382,435**	**384,276**
Input material per t of copper	**t/t Cu**	**2.17**	**2.30**	**2.21**
Operating supplies and materials				
Oxygen	Million m³	32	41	44
Rhine sand	t	16,746	19,528	9,524
Limestone	t	1,205	1,661	218
Energy				
External power sources	MWh	147,930	141,246	149,110
Internal power sources	MWh	7,502	7,338	9,252
Natural gas, oil, coal	MWh	321,977	346,889	349,142
Total energy consumption	MWh	494,482	495,473	507,783
Use of regenerative/renewable energy				
Use of process heat	MWh	7,502	7,200	9,259

The table may include slight deviations in the totals due to rounding.

Input	Unit	2022	2023	2024
Water withdrawal/uptake				
Potable water	m³	612,206	552,189	569,491
Precipitation	m³	149,568	269,912	213,037
Other sources (e.g., raw materials)	m³	36,412	39,099	37,547
Total water uptake	**m³**	**798,186**	**861,200**	**820,075**
Water consumption (withdrawal) per t of copper output	**m³/t Cu**	**4.3**	**5.2**	**4.7**
Area used				
Total plant area (incl. south plant entrance)	m²	316,000	316,000	316,000
Buildings and paved area	m²	252,784 (equivalent to 80 %)	252,784 (equivalent to 80 %)	252,784 (equivalent to 80 %)

The table may include slight deviations in the totals due to rounding.

Output	Unit	2022	2023	2024
Products				
Copper products sold (cathodes, anodes and blister)	t	184,070	166,324	173,919
KRS oxide	t	22,667	24,260	20,722
Iron silicate sand	t	160,615	160,872	155,768
Other (tin composite, nickel sulfate, etc.)	t	21,679	21,353	20,921
Total products	t	389,031	372,762	371,668
Waste				
Total waste volume, including construction waste	**t**	**63,927**	**40,649**	**28,689**
Construction	**t**	**58,350**	**36,256**	**23,633**
Hazardous waste	**t**	**372**	**348**	**367**
AVV[1] 16 11 03* Spent potlining	t	223	248	258
AVV 17 02 04* Plastic waste	t	54	34	23
AVV 13 05 08* Waste emulsion	t	22	20	33
Other	t	73[2]	46[3]	53[4]
Non-hazardous waste	**t**	**5,206**	**4,045**	**4,689**
AVV 19 12 04 Plastic waste	t	1,185	1,333	1,583
AVV 19 10 02 Aluminum	t	1,839	1,310	1,727
AVV 15 01 03 Wood (pallets)	t	604	593	702
Other	t	1,577[5]	810[6]	677[7]
Total waste per t of copper output	kg/t Cu	30	26	29
Total waste per t of input material	kg/t	14	11	13

[1] Waste List Ordinance (AVV).
[2] Comprises 10 waste code numbers (AVV).
[3] Comprises 12 waste code numbers (AVV).
[4] Comprises 9 waste code numbers (AVV).
[5] Comprises 20 waste code numbers (AVV).
[6] Comprises 15 waste code numbers (AVV).
[7] Comprises 15 waste code numbers (AVV).

The table may include slight deviations in the totals due to rounding.

Output	Unit	2022	2023	2024
Emissions				
CO_2 (direct emissions) per t of copper output	t CO_2/t Cu	0.84	0.96	0.92
Dust per t of copper output	g/t Cu	110	121	109
Dust per t of copper equivalent	g/t Cu eq.	75	80	75
SO_2 per t of output	kg/t Cu	5.5	5.4	5.2
NO_x per t of copper output	kg/t Cu	1.7	1.7	2.0
Water discharge				
Wastewater (indirect discharge)[1]	m³	181,000	169,500	154,300
Water discharge per t of copper output[1]	m³/t Cu	0.98	1.02	0.89

[1] Retroactive correction of 2022 and 2023 wastewater discharge volumes.
The table may include slight deviations in the totals due to rounding.

CERTIFICATE

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT

IHK Hannover als EMAS-Registrierungsstelle
für die Industrie- und Handelskammern
in Norddeutschland

Aurubis AG

Hovestr. 50, 20539 Hamburg
Kupferstr. 23, 44532 Lünen

Registration-No.: DE-131-00035

Date of first registration: 1st November 2005

This certificate is valid until: 19th May 2026

This organisation has established an environmental management system according to Regulation (EC) No. 1221/2009 and EN ISO 14001:2015 (sections 4 to 10) to promote the continual improvement of environmental performance, regulary publishes an environmental statement, has the environmental management system verified and the environmental statement validated by an independent and accredited verifier, is registered under EMAS (www.emas-register.de) and therefore is entitled to use the EMAS-Logo.

IHK Industrie- und Handelskammer Hannover
Chamber of Industry and Commerce

Dr. Mirko-Daniel Hoppe

Hannover, 21st June 2023

INDUSTRIE- UND HANDELSKAMMER HANNOVER 9

TÜVNORD

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

EMAS

in accordance with the
REGULATION (EC) No 1221/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2009
on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)

The signing environmental verifier Ralph Meß, licensed for the scope "NACE-Code 24.44 - production and initial processing of copper", declares, to have verified whether the whole organisation as indicated in the environmental statement of the organisation

Aurubis AG
Hovestraße 50
20539 Hamburg
Germany

Aurubis AG
Kupferstraße 23
44532 Lünen
Germany

with registration number D-131-00035 meet(s) all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme in the version amended by regulation (EU) 2017/1505 and regulation (EU) 2018/2026 are fulfilled (EMAS).

By signing this declaration, I declare that

- **the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,**
- **the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,**
- **the data and information of the environmental statement of the organisation reflect a reliable, credible and correct image of all the sites' activities, within the scope mentioned in the environmental statement.**

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Hannover, 19.05.2025

Ralph Meß
Environmental Verifier
DE-V-0300

TÜV NORD CERT
Prüf- und Umweltgutachtergesellschaft mbH
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Imprint

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LAYOUT
domin kommunikationsdesign

PHOTO CREDITS
Aurubis AG

EDITORIAL DEADLINE
This report describes calendar year 2024. Current events were included up to the editorial deadline of May 2025.

This Environmental Statement comprises Aurubis AG, which includes the Hamburg and Lünen sites.

aurubis.com

Metals for Progress

EN_25/05

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