Heraeus

Precious Metals

Sustainability Factbook 2023 EN

CONTENTS

FOREWORD 4

01 PRECIOUS TO US 6
Precious metals foster a better world 8
Our pledge to responsibility 11

02 CLIMATE IS PRECIOUS TO US 12

03 RESOURCES ARE PRECIOUS TO US 22
Circular economy 26
Impacts on environment and biodiversity 30

04 PEOPLE ARE PRECIOUS TO US 32
Diversity, equity, and inclusion 36
Working conditions 40
Health and safety 42
People in our value chain 44

05 GUIDED BY INTEGRITY 48

06 ABOUT US 54
Heraeus Precious Metals at a glance 56
Sustainable Development Goals (SDGs) 60

Imprint 63

FOREWORD

Dear readers,

Precious metals are indispensable. Whether it's battling cancer, cleaning exhaust air, or enabling the production and use of green hydrogen—they are necessary for technological transformation, innovation, and for creating a more sustainable future. Furthermore, gold and silver are a backbone of the global financial sector and provide people with financial security. As one of the largest recyclers and refiners of precious metals, we strive to realize the potential of these resources as responsibly as possible.

Precious to us: Under this pledge, we are summarizing our commitment toward climate, resources, and people. In 2023, we published our first Sustainability Report and Factbook. Our next detailed Sustainability Report is planned for 2025. Until then, this Factbook provides an overview of our targets, the progress we achieved so far, and what still lies ahead of us.

We are seeing very good progress toward our sustainability targets: Last year, we successfully reduced our Scope 1 and 2 emissions by 25%. Our joint venture in China started operation, increasing our recycling capabilities. And we have almost reached our target of having 40% women in our Global Management Team. These are just some of the highlights.

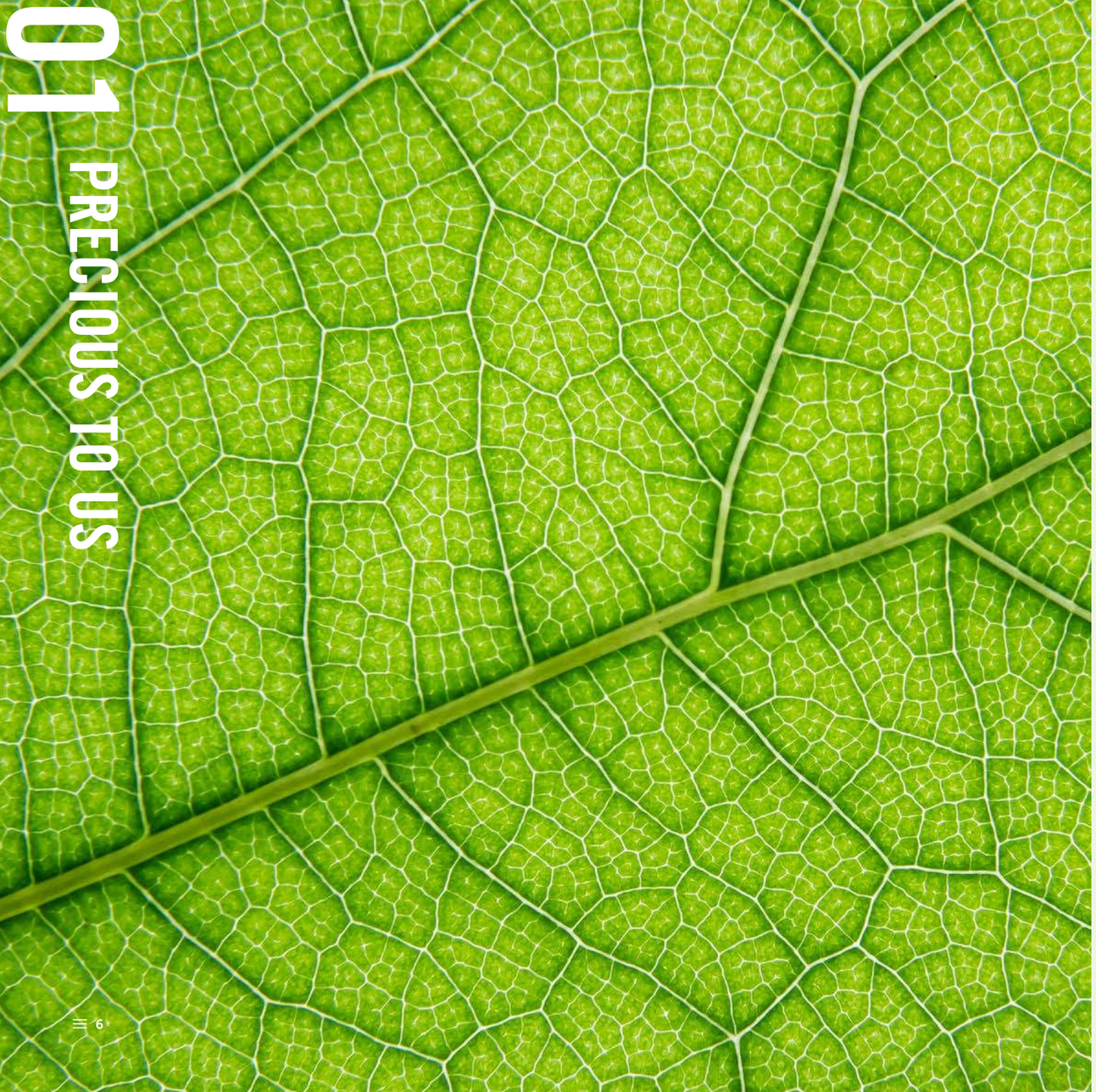
Of course, there is still a lot more to achieve. We are looking forward to continuing the path that Heraeus Precious Metals has been following in the past years in promoting sustainability within our company, our value chain, and within the broader industry.

Let us work together to create a more sustainable future that is precious to us all.
Thank you for joining us on this journey.

Steffen Metzger
CEO Heraeus Precious Metals

Svea Scherleithner
Global Head of Sustainability

Stefan Staubach
CEO Heraeus Precious Metals



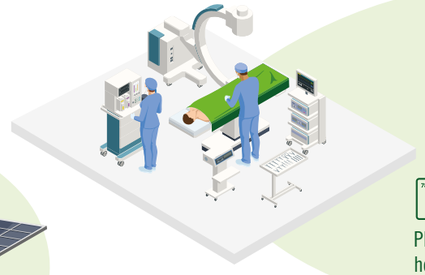
01 PRECIOUS TO US

Precious to us

Responsibility is at the core of everything we do. Behaving responsibly toward people, the environment, and all our stakeholders is an integral part of our culture. We are convinced that this will also have a decisive influence on our success in the future.

Precious metals foster a better world

Precious metals are indispensable. They enable technological transformation and innovation needed for a more sustainable world.



^{78}Pt

Our Karstedt catalysts are used for the production of high-quality silicones that are used, for example, in **medical applications**.

^{78}Pt

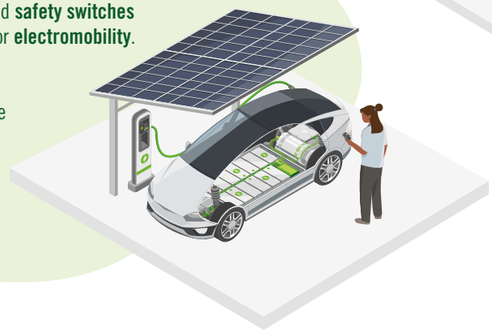
Platinum active ingredients help to **defeat cancer**.

^{47}Ag

Contact materials for **electrical connections** and **safety switches** are necessary for **electromobility**.

^{47}Ag

Metallizing pastes enable power generation in **solar cells** by serving as electrical contacts.



^{47}Ag ^{44}Ru

The **antimicrobial** effect of AGXX particles helps to prevent the spread of dangerous germs and the economic damage caused by biocorrosion.

^{78}Pt ^{45}Rh ^{46}Pd

Our catalysts **clean exhaust air** in engines and industrial processes.

^{78}Pt ^{44}Ru ^{79}Au ^{77}Ir ^{45}Rh ^{46}Pd

Catalysts enable the replacement of fossil feedstocks by **renewable feedstocks** in chemicals production.

^{78}Pt ^{77}Ir ^{46}Pd ^{44}Ru ^{45}Rh

Catalysts enable sustainable energy supply in the production, purification, storage, and transport of **green hydrogen**.

^{79}Au ^{47}Ag

Precious metal wires and slip ring applications are used in **wind turbines** to transmit electrical power in pitch control systems.

^{78}Pt

Platinum bushings are needed for the **production of glass fibers**, which for example are used in the manufacture of wind turbine blades.

^{78}Pt ^{46}Pd ^{45}Rh

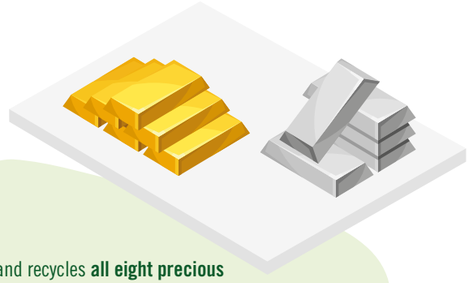
Catalytic gauze systems **reduce emissions of the greenhouse gas N_2O** in fertilizer production processes.

Maximize impact, minimize harm

We are proud of the positive impact our precious metal products have. The modern life enjoyed by all today would not be possible without them. While platinum group metals are used in many industrial applications, gold and silver are essential to the electronics and photovoltaics industries and are valued as investment products and in jewelry. Therefore, we see it as our duty to realize the huge potential of precious metals as responsibly as possible.

As impressive as precious metals are, they do also have drawbacks. The huge demand for precious metals cannot nearly be covered by recycling, so mining is indispensable. However, their extraction and processing are very energy- and carbon-intensive and can adversely impact workers, nature, and nearby communities. That is why we work tirelessly to maximize the benefits of precious metals for people and the planet while steadily reducing their negative impact.

79 Au **Gold**	45 Rh **Rhodium**
47 Ag **Silver**	44 Ru **Ruthenium**
78 Pt **Platinum**	77 Ir **Iridium**
46 Pd **Palladium**	76 Os **Osmium**



Heraeus refines and recycles **all eight precious metals**. We are one of the largest recyclers and refiners of precious metals and a leading name in industrial precious metals trading.

Our pledge to responsibility

Climate, resources, and people are precious to us. We pledge to always act accordingly. To systematically decarbonize our business. To always look for new ways to conserve resources and promote a circular economy. To prioritize the well-being and interests of the people in our company, in nearby communities, and along our value chain. Just as importantly, we expect the same from our business partners, both upstream and downstream.

We are convinced that our industry can make a successful transition toward sustainability, but we can only achieve this by working together: from miners to refiners, processors, and users of precious metals. Our aim is to lead by example and to propel positive change in our industry. We set rigorous standards for our own business and actively encourage the adoption of similar standards along the entire value chain.

The roof of the new logistics hall at the Hanau site was equipped with photovoltaic (PV) modules and went into operation at the beginning of 2024. It is one of many more roofs covered with PV systems.

Climate is precious to us

Climate protection is one of humankind's biggest challenges. Rising sea levels, forest fires, severe weather events, and loss of biodiversity are just a few of the adverse impacts of climate change.

Our business activities result in carbon emissions at our company and along our value chain. We pledge to our responsibility by putting a high priority on a significant and timely reduction of our carbon footprint.

Targets and KPIs

Carbon-neutral

0.0

CARBON EMISSIONS BY 2025, SCOPE 1+2

We will be carbon-neutral for our own operations by 2025. This commitment includes reducing our energy consumption by 20%[1] and transitioning to 100% green electricity. Only the remaining emissions will be offset.

Net zero

0.0

FOSSIL FUELS BY 2033, SCOPE 1+2

We aim to reach net zero in our own operations by transitioning our processes to electricity or green hydrogen. Only residual emissions of less than 10%[1] will be offset.

-50%

INDIRECT CARBON EMISSIONS BY 2033, SCOPE 3[2]

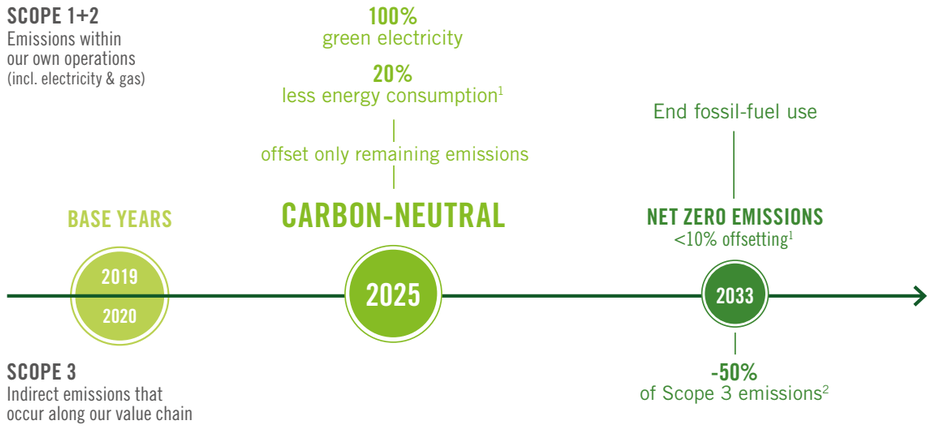
We will reduce carbon emissions along our value chain, for example by engaging with mining partners to actively support their decarbonization efforts and by increasing the proportion of recycled metals in our products.

02 Climate is precious to us

Where we stand

In 2021, we committed ourselves to the most ambitious climate program in the industry: carbon neutrality for our own operations by 2025 and net zero by 2033. Our journey is well underway: In 2023, we successfully reduced our Scope 1 and 2 emissions by 25% compared to 2022.

However, we recognize that sustainability is not just about our own operations but extends to our entire value chain. Accordingly, we have set ourselves the target of achieving a 50% reduction in emissions along our value chain by 2033[2]. In 2023, 96% of our Scope 3 emissions resulted from the purchase of precious metals. Compared to 2022, our Scope 3 emissions increased by 6%. This is mainly caused by an increase in purchased gold. We acknowledge that volatile and cyclic market demands, especially for gold, will continue to be a challenge. Yet, we are positive that we will reach our set targets with the measures planned.



1 Compared to our emissions in the 2019 baseline year.
2 Compared to our emissions in the 2020 baseline year.

Where we stand

Avoidance and efficiency

-13%
ENERGY CONSUMPTION SINCE 2019

+47%
BUSINESS GROWTH SINCE 2019

-8%
ENERGY CONSUMPTION 2022 TO 2023

Green electricity

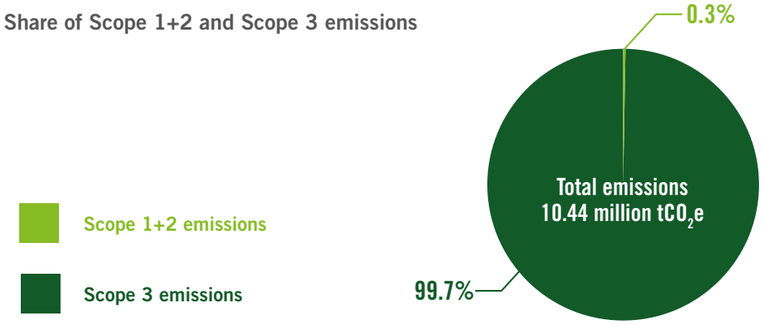
By the end of 2023, nine sites, including our joint venture in India, had photovoltaic (PV) installed; two more sites followed in 2024. In total, 10% to 15% of our electricity needs will be met by own PV systems by 2025.

11 SITES WITH SOLAR POWER SYSTEMS

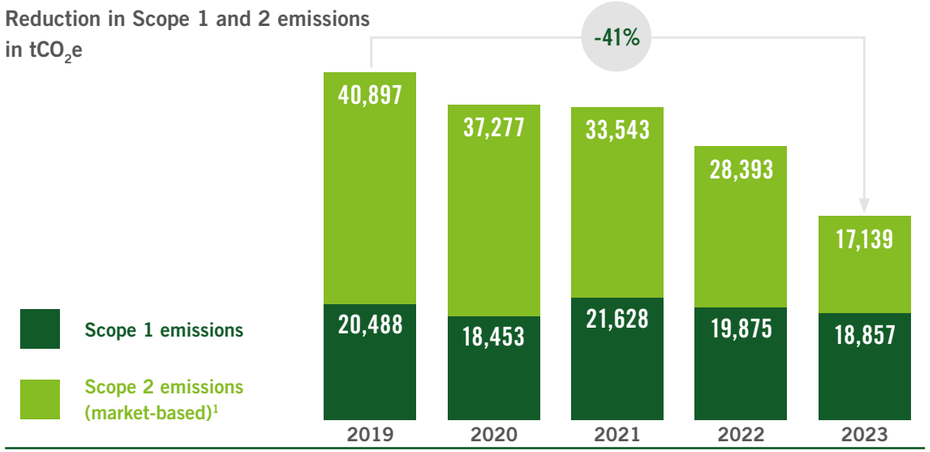
In 2023, 56% of the electricity consumed by our own operations originated from renewable sources, including own PV systems.

56% GREEN ELECTRICITY CONSUMPTION

Share of Scope 1+2 and Scope 3 emissions



Reduction in Scope 1 and 2 emissions in tCO_2e



1 Scope 2 figures for 2022 have been updated with new factors.
Scope 2 figures for 2023 are based on factors for 2022 and will be updated with 2023 factors in the future.

02 Climate is precious to us

Projects and examples

Solar power progress in 2023 and outlook for 2024

Photovoltaic (PV) systems at our sites are an important lever for reaching our goal of 100% green electricity by 2025. In 2023, PV systems at nine of our sites were already in operation, generating around 2.5 million kWh of green electricity. Two more sites in the United States with own PV systems followed in 2024.

In addition, we are building ground-mounted PV systems close to our sites in Hanau, Germany, and Gqeberha, South Africa, adding further significant capacities.

2.5 GWh

OF ELECTRICITY GENERATED by own PV systems

IN 2023

Optimizing energy-intensive processes

We have implemented an ambitious energy-efficiency program and are continuously driving projects to reduce our energy consumption worldwide:

We used a data-driven approach to reduce the run times of our furnaces, in which precious metals containing waste is processed for recycling. Our in-house developed “burn time optimization algorithm” enables us to determine the completion of the burn process live in the furnace. This innovation resulted in a significant reduction of the average burn time per batch from nine to seven hours, equaling a saving of more than 200 tCO_2e annually.

We have developed the world’s first electric chamber furnace for thermal preparation together with our equipment manufacturing partner. Furnaces are essential for processing precious metals and are commonly heated with fossil fuels. An electric furnace is thus a significant milestone on our journey to end the use of fossil fuels like natural gas.

It will expand our existing recycling capacities and enable us to process further materials like fuel cell membranes. Another special feature is the energy recovery of the connected exhaust gas treatment: Around 60% of the energy used can be recovered.

In total, the new furnace will save around 570 tCO_2e per year and conserve 2.25 million kWh annually by using the recovered energy. The project is a pilot and we plan to transfer the approach to other furnaces at our production sites around the world.

NEW FURNACE WILL SAVE AROUND

570 tCO_2e

AND 2.25 GWh

PER YEAR BY USING RECOVERED ENERGY

At our site in Nanjing, China, we implemented various measures to improve incineration lines and successfully reduced natural gas consumption. One measure focused on the afterburn chambers, in which exhaust gas is treated at high temperatures. By enhancing the temperature control, we significantly minimized variances. Further optimizations on the incineration system included measures for detecting and reducing air leakages.

In addition, we optimized our burning process and reduced burning times. In total, these measures saved around 730 tCO_2e and 3.65 million kWh in 2023. We expect even higher savings in 2024.

SAVINGS OF

3.65 GWh

THROUGH BURNING PROCESS OPTIMIZATION

02 Climate is precious to us

Projects and examples

Fostering a culture of sustainability

It is of great importance to us to involve the entire organization in our sustainability transformation process.

For example, idea management systems have been in place at our sites for many years. Thanks to our employees' commitment, we are continuously improving. This is paying off: In 2023, 380 employee ideas were submitted at our headquarters in Hanau, Germany, and around 130 ideas at our site in Mendrisio, Switzerland. They addressed not only sustainability as well as energy and resource savings, but also process optimization, work safety, and other areas of improvement.

During the Sustainability Week at our site in Shannon, Ireland, we offered training and information to our employees focusing on energy, water, waste, and biodiversity. In subsequent brainstorming sessions, our employees came up with numerous further ideas.

Furthermore, we strive to engage our employees in different projects and events that spotlight sustainable behavior. One example is the Biking Challenge, that our site in Hanau has been organizing for the past few years. During the summer months, employees are encouraged to cycle to work to save CO_2, thereby collecting kilometers as a team. For every kilometer, we donate to a non-profit organization and give an award to the team with the most kilometers cycled.

The winning team from the 2023 Biking Challenge.

03 RESOURCES

We recycle precious metals containing waste and end-of-life materials, for example from the production of hydrogen.

Resources are precious to us

According to UNICEF, 3.3 earths would be needed to keep up with consumption levels of the OECD and EU countries. This rate of resource use is clearly unsustainable. Moreover, the extraction, processing, and disposal of natural resources can have significant environmental impacts.

Our business activities rely on precious resources. We live up to our responsibility by improving our processes and products so that they require fewer and fewer resources and by adopting circular approaches wherever possible. With recycling we recover large quantities of precious metals, which reduces the need for primary extraction.

Targets and KPIs

60%

SHARE OF RECYCLED PGMs PROCESSED IN OUR PLANTS IN 2023

60% of platinum group metals (PGMs) and 20% of gold and silver volume processed in our plants are secondary material. We aim to increase the proportion of recycled precious metals in our products.

€300m

INVESTMENT IN RECYCLING CAPACITIES UNTIL 2026

We are continuously expanding our worldwide recycling capacities and capabilities. This allows us to close the loop for further precious metals containing waste. Between 2018 and 2026, we will have invested a total of 300 million euros in further capacities in Europe, North America, and Asia.

UP TO 98%[1]

LOWER CARBON FOOTPRINT OF RECYCLED VS PRIMARY PRECIOUS METALS

Many of our precious metal products are returned to us at the end of their lifetime. By making new products out of the recycled fine metal, we are continuously keeping recovered precious metals in the loop.

1 International Platinum Group Metals Association reports from 2022 and 2023

03 Resources are precious to us

FINE METAL PRODUCED THROUGH RECYCLING AND REFINING IN 2023

903 metric tons SILVER Ag

119 metric tons platinum group metals PGMs Pt Pd Rh Ru Ir Os

373 metric tons GOLD Au

Circular economy

We refine and recycle all eight precious metals and rhenium from primary and secondary sources. With 11 recycling facilities in seven countries worldwide, we not only maintain close proximity to our customers but also achieve shorter transportation distances.

We use state-of-the-art pyrometallurgical and hydrometallurgical processes to recover precious metals from secondary sources, such as end-of-life materials, to the maximum extent possible.

03 Resources are precious to us

Where we stand

We are systematically expanding our recycling capabilities. In the past years, we invested $120 million in our facility in Nanjing, which significantly increased our recycling capacity in China, and made substantial investments in collaboration with our joint venture in India. A new smelter at our facility in Wartburg, USA, started operation in 2024. At our site in Hanau, Germany, we are investing €33 million to expand our wet chemical recycling capacity for platinum group metals. In addition, a new chamber furnace will enable us to recycle further materials such as fuel cell membranes.

The new smelter in Wartburg is powered by electricity from 100% renewable sources.

We continually look for new ways to put precious metals back into the loop. One example is urban mining, in which precious metals are recovered from waste material that has not yet been recycled.

We partner with global leaders such as BASF, with whom we founded a joint venture to recycle automotive catalysts in Pinghu, China. The joint venture started operations at the beginning of 2024.

The new factory of the joint venture with BASF in Pinghu covers an area of 32,000 square meters.

Projects and examples

Ruthenium-based catalyst for the production of green hydrogen

One of the most promising technologies for producing green hydrogen is proton exchange membrane water electrolysis. About 70 GW of this type of electrolysis are expected to be built worldwide by 2030. Currently, building one GW of capacity requires around 400 kg of iridium. 70 GW of capacity would therefore need about 28 metric tons of iridium, which is more than double the quantity available.

Together with Sibanye-Stillwater, we have developed a ruthenium-based catalyst to mitigate potential iridium supply bottlenecks. With the new catalyst, only 30-150 kg of iridium are needed for the production of one GW of capacity.

Overall, the new catalyst significantly improves the sustainability of hydrogen production: It reduces material costs and reliance on the very scarce material iridium.

Circlear: Recycled precious metals are the sustainable choice

Our new offering Circlear is made from 100% recycled precious metals, thus coming with a significantly lower carbon footprint. By offering many of our industrial products with Circlear, we enable our customers to reduce their Scope 3 carbon footprint and accurately track their progress toward their sustainability goals:

One kilogram of recycled precious metals saves up to 33 metric tons of CO_2 compared to primary material.[1]

Circlear's 100% recycled content is based on mass balance and has been verified by TÜV SÜD according to ISO 14021 for seven precious metals: gold, silver, platinum, palladium, iridium, rhodium, and ruthenium.

1 International Platinum Group Metals Association reports from 2022 and 2023

Impacts on environment and biodiversity

Healthy, well-functioning ecosystems are the foundation of all life on our planet. Both our own operations and our upstream value chain can have significant impacts on the surrounding environment and biodiversity. This is why for us responsible sourcing and use of precious metals also means paying close attention to these potential impacts and minimizing them wherever possible.

Where we stand

Biodiversity

Starting 2024, we will conduct a biodiversity impact assessment for all our production and recycling sites, including a proximity analysis to identify biodiversity priority areas and features nearby. We will use these findings and refer to initiatives such as the Kunming-Montreal Global Biodiversity Framework to define further mitigation strategies.

Considering the significant potential impacts mining has on nature, we pay close attention to our upstream value chain. There are many examples showing that the precious metals mining industry is aware of its impacts and is taking measures to address and reduce them. We encourage our mining partners in their ongoing efforts to steadily become more sustainable and to promote the global ambitions of halting and reversing biodiversity loss. Therefore, we are placing greater emphasis on biodiversity in our regular on-site assessments and are increasing our efforts to monitor potential drivers of biodiversity loss near mines as well as the countermeasures taken by our mining partners.

Water

Water plays an important role in our operations. For example, it is needed as a solvent or absorbent in our precious metal recycling processes. Accordingly, we always comply with all applicable laws and regulations for managing and handling water and wastewater.

We will continue to expand our reporting pathways for water consumption and increase data quality with a particular focus on the amounts of water that enter and leave our production in the form of chemicals and products. Furthermore, we will analyze the specific water use per site. Our target is to complete this for our sites in Hanau, Mendrisio, and Nanjing, which account for over 60% of our water withdrawal, by the end of 2024.

The biggest share of our water footprint comes from our upstream value chain. Hence qualitative assessments of our mining partners' water management systems, aligned with the strict LBMA standards, have already been part of all our regular on-site assessments for a long time. We recently started to gather quantitative data on water usage and water sources from our mining partners. As we gain more transparency, we will assess our mining partners regarding water and engage with them to find ways to reduce their impact.

People are precious to us

People are at the heart of everything. We are convinced that the human element is what creates impact, drives innovation, and fosters strong partnerships. These are essential for growth and sustainable transformation.

We prioritize the well-being and interests of the people in our company, in nearby communities, and along our value chain. This especially includes ensuring respect for human rights, fair working conditions, a safe and healthy work environment, living wages, and diverse and inclusive workplaces.

Targets and KPIs

40% WOMEN & 50% NON-GERMAN EMPLOYEES

IN GLOBAL MANAGEMENT TEAM BY 2025

Diversity begins at the top. By 2025 our Global Management Team will consist of at least 40% women and 50% non-German employees.

REDUCE WORK-RELATED INCIDENTS TO

ZERO

Our ultimate objective is zero work-related incidents. To achieve this target, we have numerous measures in place.

100%

OF OUR MINING PARTNERS WITH TARGETS, MEASURES, AND PROGRESS

We are expanding our activities from the workers in our value chain to include surrounding communities and the environment. Our aim is to ensure that all our mining partners define concrete targets and measures and make progress.

"Relocating for employment abroad not only requires tackling new job challenges but also adapting to a different living environment and cultural differences. Throughout this process, Heraeus provided a range of assistance to ensure a seamless transition for me."

Peiling Chen

Global Business Controller
Heraeus Precious Metals
Hanau, Germany

Peiling Chen joined Heraeus in China in 2018 as a Finance Trainee. After several years as Financial Planning Analyst and Trader, she dared to take the step: She moved to Germany and started her new role as Global Business Controller for Heraeus Precious Metals at the headquarters in Hanau. Here she is responsible for month-end closing and reporting, rolling forecast as well as sustainability controlling. Heraeus Precious Metals actively encourages employees' mobility and job rotation with international assignments and cross-functional transfers for career development.

Diversity, equity, and inclusion (DE&I)

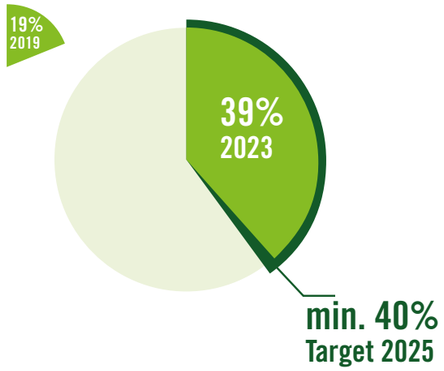
DE&I is essential to our identity and culture. We actively encourage different perspectives, put together diverse teams, provide equal opportunity, and insist on real cultural change toward a truly inclusive work environment. We believe that diversity makes us better—better at understanding our markets and customers, at generating business opportunities, and at being innovative. Consequently, we have made DE&I a top strategic issue.

Where we stand

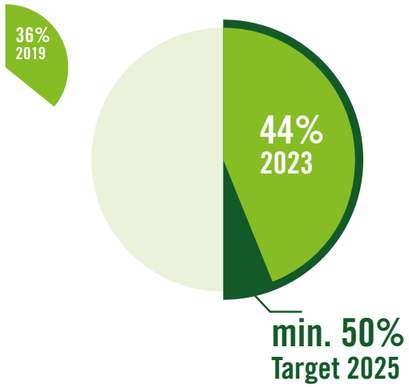
At year-end 2023, women accounted for 39% and non-Germans for 44% of our Global Management Team. Our company's age structure, including for executives and managers, is well balanced across all age groups. At year-end 2023, our average employee was 42 years old.

While making progress toward quantifiable targets is important, diversity also has a qualitative aspect that cannot be measured by KPIs—atmosphere and culture. We therefore address the topic from different angles.

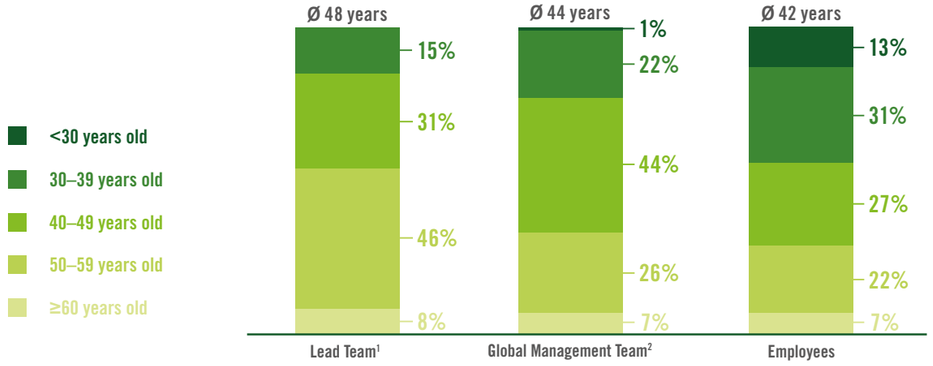
Share of women within the Global Management Team



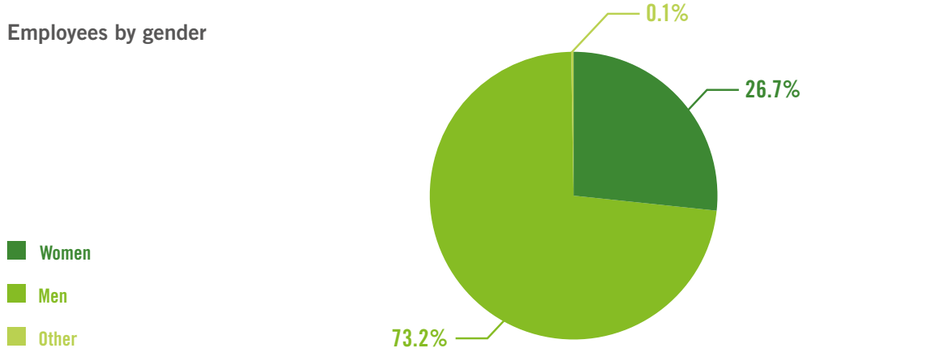
Share of non-German employees within the Global Management Team



Age distribution of employees



Employees by gender



1 Including CEO
2 Including Lead Team and most senior leaders (in 2023: 106 people)

Projects and examples

Hiring for diversity

Diverse recruitment and promotion form the basis of our successful workforce. We use gender-neutral language in job advertisements, are working to enhance our brand as a diverse employer, and place less emphasis on the ability to speak the local language fluently. We require search firms to provide us with at least 50% female candidates. Our trainee and talent programs include at least 50% women and 50% non-Germans. Ultimately, we hire or promote the best candidate for a particular position.

Reducing biases

We provide training to minimize unconscious bias and foster inclusive leadership. In 2022, we conducted training sessions with our Global Management Team. We extended these training sessions to part of our workforce as well as to our Global Talent Program in 2023. Furthermore, we made inclusive leadership and psychological safety key topics at our 2023 Annual Management Meeting to further foster a diverse and successful organization.

Balancing family and career

Enabling job sharing and parental leave is essential for improving gender diversity. We support parental leave options for all genders at the majority of our sites. In addition, we also enable part-time leadership and job sharing.

Gender pay gap analysis

We are strongly committed to the principles of equality and transparency in our compensation policy. Our ambition is to significantly undercut the gender pay gap limit required by the EU for 2027. To meet these requirements, we are already conducting gender pay gap analyses at a global level and regularly review and adapt individual cases during our yearly merit increase process.

For 2023 our gender pay gap analyses globally revealed no significant gender-specific pay differences. In Germany, our largest location, the unadjusted gender pay gap of less than 5% lay well below the German average of 18%.

Working conditions

Our employees worldwide are our most important asset. Their skills, knowledge, and dedication—as well as their diverse experience and personalities—shape our company and its success. We strive to offer attractive salaries as well as opportunities for development and are committed to providing a modern work environment in which all employees feel appreciated and can realize their full potential.

Where we stand

Employee satisfaction and benefits

We offer competitive salaries and benefits. The aim is not only to show our appreciation but also to enhance employee retention. The numbers point to our success: The average employee has been with us for 11 years, and our global fluctuation rate is 7.5%.

EMPLOYEES ARE WITH US FOR AN AVERAGE OF 11 years

We also offer a variety of benefits at all our sites, which differ by country. Examples include insurances, housing funds, subsidized public transport, fitness courses, retirement funding, and paid leave.

Our objective is to provide the best possible working conditions. In 2024, we will conduct an employee engagement survey to measure employee satisfaction and identify areas for improvement.

Training and education

We are committed to offering professional development opportunities to all employees throughout their career. We invest in our future workforce by offering apprenticeship programs, a management trainee program for graduates, internships during university programs, work-study schemes, and scholarships. For example, in Germany we employed 97 apprentices and dual students in 2023. Our employees received an average of 3 hours of training by means of eLearning. In addition we provide third-party and in-person training.

Talent management

We have been running talent programs for many years. Their purpose is to enable talented employees to take on more responsibility and fill key positions internally. In 2023 employees from our own company were appointed to 86% of our vacant Global Management Team positions, with the majority having previously participated in our talent programs.

86% OF VACANT GLOBAL MANAGEMENT TEAM POSITIONS WERE FILLED INTERNALLY

Health and safety

Health and safety of our employees are our top priority. We strive to ensure that everyone starts their workday in good health and finishes it without any harm or negative impact. Our certified health and safety (H&S) management system and comprehensive policies give our organization a strong safety culture. Nevertheless, we continually work to make our operating facilities and offices even safer.

Where we stand

To reach our ultimate target of zero work-related incidents, we have numerous measures in place.

IN 2023, WE REDUCED LOST DAYS CAUSED BY INCIDENTS BY 74%

As an interim target on the way to zero incidents we are striving to reduce lost days caused by incidents by at least 20% in 2024. All H&S incidents, including injuries, work-related ill health, process safety incidents, unsafe situations, and near misses, are reported, investigated, and addressed with corrective and preventive actions.

Work-related health hazards are systematically evaluated with the help of a risk assessment. In order to ensure compliance with legal exposure limits, regular measurements are carried out at the workplaces in the form of air and surface samples. The prevention of platinosis is of particular concern to us. By 2030, we will voluntarily implement an exposure limit of 100 ng/m³ for chloroplatinates. This goes significantly beyond the regulatory limit of 2,000 ng/m³. As a further preventive measure against platinosis, we carry out bio-monitoring on a routine and incident-related basis wherever possible.

We promote a strong H&S culture among our employees through daily routines such as safety talks before each shift. We assign responsible persons for health and safety topics at all levels of our organization—from top management to shop floor. All employees are trained on H&S topics, according to the conditions of their workplace. Our H&S experts at all sites worldwide have up-to-date qualifications and are readily available to provide guidance on questions, training programs, and educational materials.

At the end of 2023, 95% of our employees were working at a facility with an H&S system, and we continue to strive to increase the number of certified facilities.

Lost time incidents[1]	2022	2023	Change
Lost time incident rate (LTIR)[2]	**8.6**	**5.1**	**-41%**
Total number of incidents	**39**	**25**	**-36%**
Thereof with serious consequences	0	0	-
Thereof fatalities	0	0	-
Total number of lost days	**724**	**190**	**-74%**

1 All recordable incidents with lost time of one day or more; numbers include employees and staff leasing.
2 The LTIR shows the number of incidents per 1,000,000 hours worked.

People in our value chain

We are aware of the significant impact our business has on people along our value chain and recognize our responsibility for their welfare. We systematically assess our precious metal suppliers' social and environmental actions, particularly with regard to protection of human rights, and engage with them to foster improvements.

Where we stand

Human rights due diligence is an integral part of our general due diligence process. Our measures to safeguard human rights include:

- conducting appropriate due diligence processes
- collaborating with mining partners to improve living conditions of workers and communities along our value chain
- monitoring observance of human rights along our value chain
- providing channels for value chain workers and people living in affected communities to raise concerns
- engaging with stakeholders in the industry to further foster a responsible work environment, especially in artisanal and small-scale mining

Our efforts to protect human rights along our value chain are based on recognized international industry standards. We supplement these with our own even more stringent guidelines.

Collaborating with our mining partners

We are aware that engaging with as many different stakeholders as possible has the greatest potential to improve the living conditions of workers in our value chain and our impact on the environment and local communities. We strongly believe that we can only create a positive impact by collaboration.

These considerations have resulted in a roadmap, setting milestones for transparency, improvements, and progress assessment regarding the impact of our mining partners.

Timeline

Projects and examples

Contributing to responsible mining

In 2023, Heraeus Precious Metals joined the Processors Working Group of the Initiative for Responsible Mining Assurance (IRMA). With that, we have committed to upholding IRMA's Principles of Engagement, contributing to the finalization of IRMA's Standard for Responsible Mineral Processing, and encouraging mining suppliers to engage in IRMA through a third-party assessment. IRMA is independently assessing mine sites globally for their social and environmental performance. Assessment results are made publicly available, increasing transparency and truthfulness regarding impacts and countermeasures taken. All our current PGM mining partners have either undergone an IRMA assessment, are currently in the process, or have committed to a specific timeline to do so.

Supporting social development projects within ASM communities

To foster positive change within the gold supply chain, our subsidiary Argor-Heraeus introduced "Traceable Gold" in 2019 in collaboration with a Swiss bank. This investment product allows customers to trace each piece back to its mine of origin. The product is sold at a premium, and the profits are accumulated in a fund dedicated to financing social development projects in artisanal and small-scale mining (ASM) communities. The allocation of these funds is decided upon by a sounding board, consisting of seven independent experts from various sectors of society.

In 2023, the sounding board awarded the "Emprende Pallaquera" initiative. "Pallaqueras" are women who manually sort gold in Peru's ASM communities. Emprende Pallaquera strives to promote gender equality by supporting the economic independence of these women. It equips them with essential business skills and knowledge to launch their own microenterprises. This initiative is made possible by the non-profit organizations Solidaridad and FUNDES.

Guided by integrity

Our compliance and transparency standards are the foundation on which the trust of our employees and customers as well as other stakeholders is built. Earning and maintaining this trust is the basis for our success. It requires an unwavering commitment to integrity and good business practices.

We value long-term relationships over short-term profits and have always ensured that processes are transparent and auditable. Our approach to compliance has three aspects: prevent, detect, and respond. Our highest priority by far is prevention.

Responsible precious metals sourcing

We apply the strictest industry standards and take all reasonable steps to ensure that the precious metals in our value chain originate from legal and ethical sources, whether it be from mines or secondary sources. Our due diligence process verifies the observance of laws, industry standards, and our own guidelines. We aim for the greatest possible transparency over our upstream supply chain. This includes:

- Extensive checks before entering a new business relationship
- Regular on-site mine assessments conducted by us or a third party, typically every three years
- Incident-based ad-hoc mine assessments
- Screening all information for irregularities, for example regarding ownership, general plausibility, and origin of metals
- Determination and assessment of the origins of delivered precious metals
- Independent assurance reports for intermediate refineries or collectors as per OECD Guideline
- Screening for sanctions and adverse media publications to verify partners' compliance with human rights laws
- Engaging with legislators, NGOs, industry associations, unions, communities, and local governments

If precious metal suppliers do not meet our standards, we refuse to enter into a business relationship with them. We terminate existing relationships if violations are detected that cannot be resolved or corrected. Our system for responsible precious metal sourcing is certified by all major responsible precious metals sourcing frameworks, such as RMI, RJC, LBMA, and LPPM.

Reporting a concern

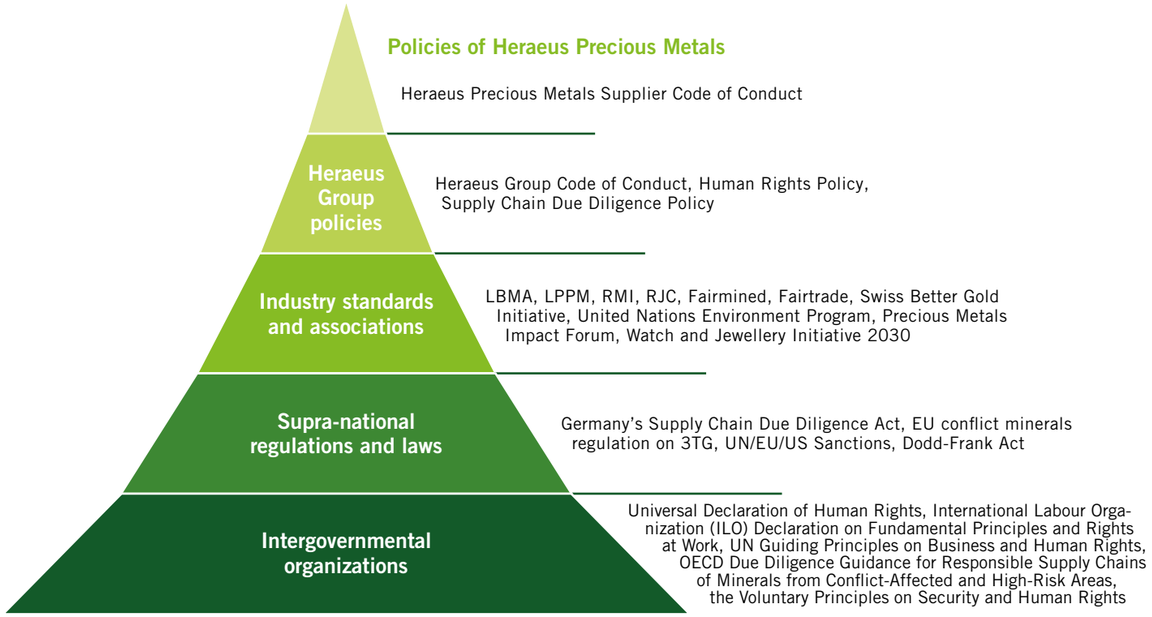
Heraeus Precious Metals takes suspected violations of human rights, criminal law, environmental law, and other laws and regulations very seriously. We encourage whistleblowers to report suspected violations and concerns via our compliance hotline or external ombudsman. In 2023, we made this even easier by introducing a new communication channel: Heraeus SpeakUp offers the possibility to report a compliance violation via internet, app, or by phone and allows an anonymous communication between the whistleblower and the person handling the incident. More information under **www.herae.us/speakup**

In 2023, we processed three grievance cases related to mining operations in the value chain of our subsidiary Argor-Heraeus, two of which were newly reported to us in 2023. All three cases were processed in line with our grievance mechanism.

Policies, standards, and regulations

Our own policies and processes go beyond regulatory requirements and industry frameworks. We promote the adoption of these stricter standards worldwide in our supply chain and the industry.

With the help of our mining partners, we strive to have a positive impact on the people, environment, and communities in the countries of origin and mitigate any negative impact.



Projects and examples

Further improving the traceability of gold
Heraeus Precious Metals has taken significant steps to ensure the traceability of gold from primary sources, providing customers with proof of origin. For all primary gold entering our gold refining site in Mendrisio, Switzerland, we conduct a thorough geoforensic analysis including X-ray fluorescence (XRF) scanning to measure the characteristic composition. This allows us to make an exact assignment to its origin.

To further secure traceability, we offer DNA markers, which allow us to identify material added during shipment with a PCR test. After proving the origin, traceable gold is processed in segregated lines and digitally traced until it reaches its product state as investment bar, semifinished, or finished product.

To enable the retrieval of the origin data, we partnered with Alitheon in 2022, a US-based company that specializes in artificial intelligence to authenticate physical products. The optical software generates digital fingerprints of gold bars that make them authenticatable, identifiable, and traceable even if their stamps or serial numbers are lost. This will allow buyers or investors to identify these bars by photo. It is also possible to provide further information like its place of origin or carbon footprint.

In addition, we have entered a partnership with the Swiss start-up aXedras, a provider of distributed ledger technology (DLT) specialized in the gold supply chain. DLT enables to save data from business transactions decentrally and unchangeably. The aim of this collaboration is to create a digital documentation from mine origin to consumer product while guaranteeing data integrity. In the long term, this approach will help us to trace even secondary gold back to its mine of origin, which has been almost impossible until now.

The fine lines on the back of the gold bar result from the casting process. This pattern is unique for each gold bar and can be compared to a human fingerprint. Together with Alitheon, we use these characteristics to make the gold authenticatable, identifiable, and traceable.

About us

We are a global leader in precious metals, covering the value chain from refining to trading to innovative precious metals products to recycling end-of-life waste materials.

We are part of Heraeus, a family-owned global technology group headquartered in Hanau, Germany. In the 2023 financial year, the group generated revenues of €25.6 billion with approximately 16,400 employees in 40 countries. Heraeus is one of the top 10 family-owned companies in Germany.

About us

Heraeus Precious Metals at a glance

We offer our customers a global trading, production, recycling, and logistics network.

€22.4 BN
TOTAL REVENUE

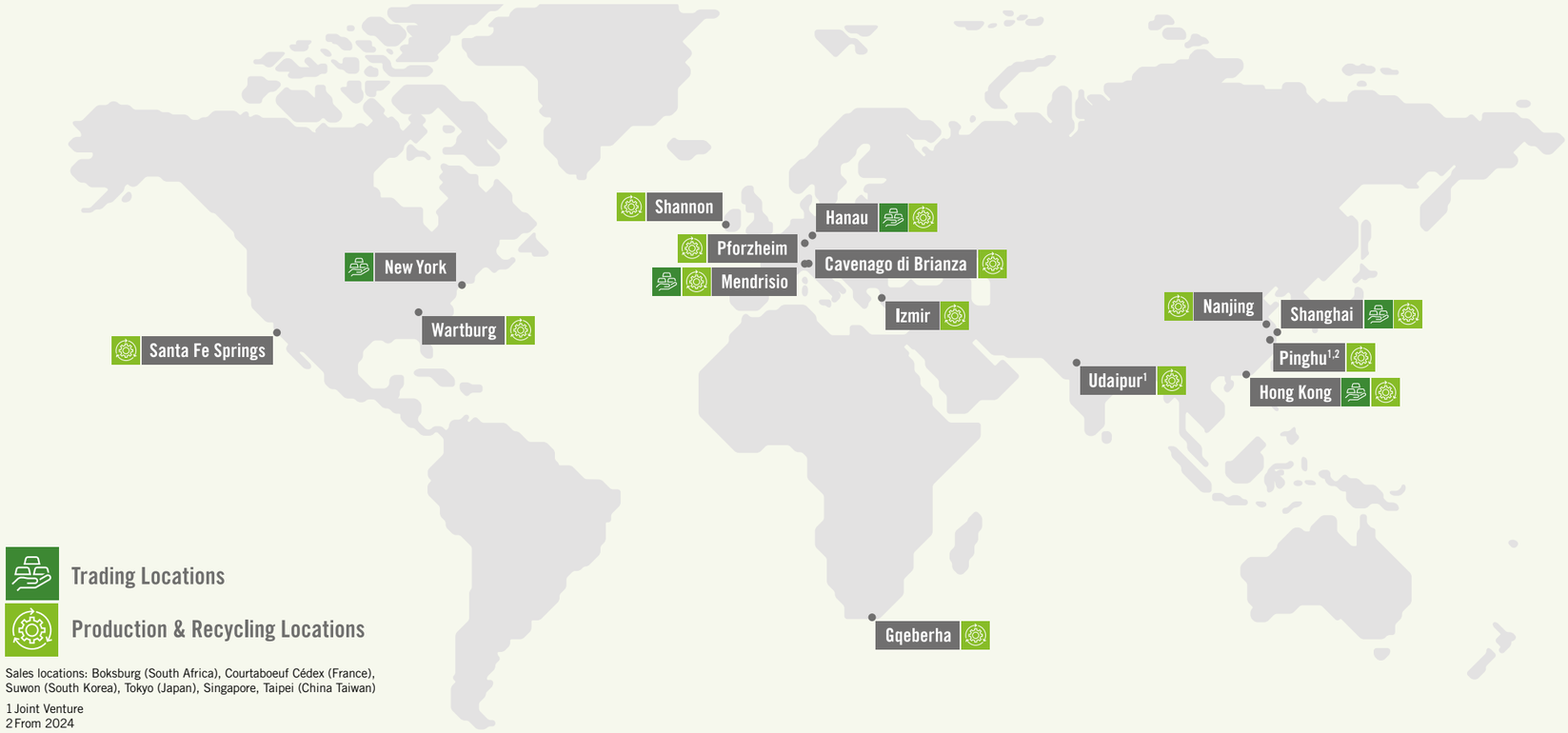
HEADQUARTERED IN HANAU GERMANY

MORE THAN 3,000 EMPLOYEES

Including staff leasing & joint ventures

200 PEOPLE IN RESEARCH AND DEVELOPMENT

All data refers to 2023.



Trading Locations

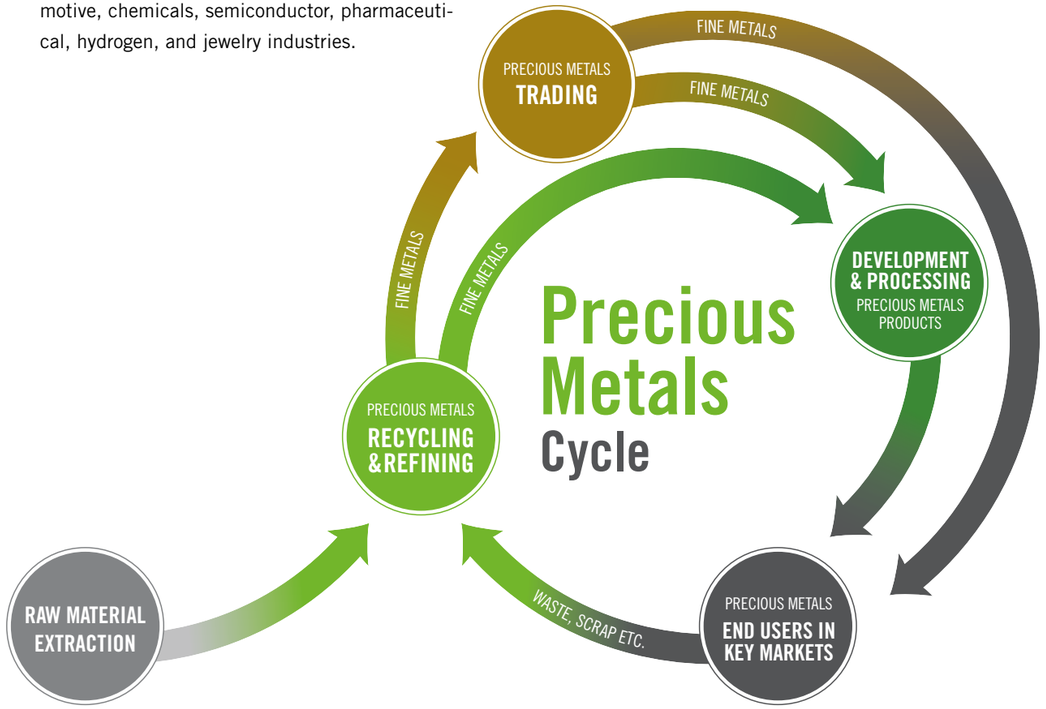
Production & Recycling Locations

Sales locations: Boksburg (South Africa), Courtaboeuf Cédex (France), Suwon (South Korea), Tokyo (Japan), Singapore, Taipei (China Taiwan)

1 Joint Venture
2 From 2024

Expertise along the precious metals cycle

We have extensive expertise in all platinum group metals as well as gold and silver. We offer a broad portfolio of products that are essential for many industries, including but not limited to the automotive, chemicals, semiconductor, pharmaceutical, hydrogen, and jewelry industries.



Our Guiding Principles: what we stand for

Heraeus Precious Metals' Guiding Principles are the cornerstone of our culture. They serve as a general orientation and guide as to how we conduct our business. These principles define behaviors and mindsets that are essential for successful cooperation with our partners, customers, and within our company.

We expect all employees worldwide to bring our core values to life and therefore work continuously to ensure their implementation and ongoing development.

CUSTOMER FOCUS We concentrate on our customers' needs.	**CLEAR LANGUAGE AND RESPECT** We communicate clearly and respect each other.	**DIVERSITY** We foster different perspectives and diverse teams.
CONTINUOUS IMPROVEMENT We continuously want to get better.	**ACCOUNTABILITY** We are responsible for our success and failures.	**RESPONSIBILITY** We care about people and our planet.

Sustainable Development Goals (SDGs)

In 2015, the United Nations Member States adopted the 2030 Agenda for Sustainable Development. It sets out 17 goals, which aim to transform our world: They are the call to action to end poverty and inequality, protect the planet, and ensure that all people enjoy health, justice, and prosperity.

We support the United Nations Sustainable Development Goals (SDGs) and continuously review, adapt, and examine our own contributions, actions, and measures to achieve them.

With our business and responsibility activities we support the highlighted SDGs in particular.

Ratings

EcoVadis rates companies' performance in four categories: environment, labor and human rights, ethics, and sustainable procurement. Our operations in Germany received a Gold Rating in 2023, ranking us among the top 5% of all companies evaluated.

CDP promotes standardized disclosures and rates companies' climate, water, and forest performance. In 2023 Heraeus Precious Metals submitted its climate disclosures and received a B rating.

Validations

In 2021, Heraeus Precious Metals committed to set near- and long-term company-wide emission reductions in line with science-based net-zero with the **Science-Based Targets initiative (SBTi)**. We submitted our targets in 2023. Yet, due to our legal entity structure within the Heraeus Group, SBTi informed us that they cannot validate the targets of Heraeus Precious Metals.

The Corporate Carbon Footprint of Heraeus Precious Metals has been verified by **TÜV SÜD Industrie Service GmbH** in accordance with DIN EN ISO 14064-3 on the basis of the Corporate Carbon Footprint Report for financial years 2020, 2021, 2022 and 2023.

PUBLISHER

Heraeus Precious Metals GmbH & Co. KG
Heraeusstrasse 12–14 • 63450 Hanau, Germany
precious.metals@heraeus.com
www.heraeus-precious-metals.com

EDITORS

Sustainability
Svea Scherleithner, René Weiß
Communications
Bettina Kraft, Mareike Fillsack
Controlling
Peiling Chen, Yvonne Wissel

DESIGN

Communications
David Leister

PICTURE CREDITS

Heraeus (pages 1, 5, 12, 21, 22, 25, 27, 28, 32, 35, 54)
Argor-Heraeus (page 53)
Adobe Stock (pages 1, 6, 8, 9, 10, 28)
Generated with Adobe Firefly AI (pages 29, 48)
Solidaridad (page 47)

PRINTING

Druckerei Lokay e.K., Reinheim

RECYCLED Paper made from recycled material FSC® C019545 www.fsc.org

eco zoom natureOffice.com/DE-344-NJ3EHGA Materials Transport Production g CO2e 160 per print product CO2e-emissions compensated

www.blauer-engel.de/uz195 • ressourcenschonend und umweltfreundlich hergestellt • emissionsarm gedruckt • überwiegend aus Altpapier WK9
Dieses Druckerzeugnis wurde mit dem Blauen Engel ausgezeichnet

Reproduction, including excerpts, permitted only with reference to the source.