



**Sustainable.
Viable.
Responsible.**

CONTENTS

4	About this report	17	A sustainable approach to our business activities	36	The employer's responsibility
		17	Quality management and product responsibility	37	Strengthening corporate culture through employee and leadership development
		18	Value creation at Heraeus	40	Employee health
		19	Heraeus areas of activity		
		20	Promoting innovation		
6	About Heraeus	23	Sustainable procurement and responsibility when trading in precious metals	42	A broad-based commitment to society
7	Global Business Units	24	Ensuring due diligence	42	Working for the common good at every location
8	New markets and business models	26	Recycling at Heraeus	44	Heraeus foundations help to improve education and promote social cohesion
		27	Conducting our own mine audits to ensure that standards are met		
10	Sustainability and Guiding Principles			46	Key figures
10	Responsibility governance			47	Index
11	Sustainability Roadmap	30	Sustainability in production and beyond	50	Publication credits
14	Framework and compliance	31	Environmental and safety aspects		
15	Integrating sustainability into business processes				
15	Stakeholder dialogue				

Dear readers,

As a family-owned company with a long-term orientation, we have naturally focused on sustainability in our business activities for generations. Those who aim to succeed in the long term must responsibly manage all the resources involved in the value creation chain. This includes the employees, and particularly the raw materials. Therefore, sustainability is an important corporate principle for Heraeus.

With our Sustainability Report, we document the action areas that underpin our sustainable conduct and the goals we have set for the future. The Sustainability Roadmap serves as our guide on the path from varying regional activities to uniform company-wide action, which will continue to take into account a variety of national standards.

In order to embed sustainability even more firmly in our company, we are currently working on a strategy that will extend throughout the company. We are developing a framework within which our business groups will play a key role as operational units. Using their own Sustainability Roadmaps, the business groups will take on even more responsibility for achieving their sustainability goals.

Our economic success largely stems from business activities that pursue the goals of sustainability. We focus on businesses in the areas of the environment, health care, and mobility. In times of growing environmental problems and resource scarcity, Heraeus is contributing to new solutions that are more environmentally friendly as well as effective, in areas such as exhaust gas cleaning and water treatment.

In light of demographic change, the topic of health is also increasingly important. Here, product developments by Heraeus are helping to improve the quality of life, for example by providing cements for hip and knee joint prosthesis, fighting cancer, or opening new possibilities in treating heart and neurological diseases.

We are also helping to shape the future of mobility. Products from Heraeus are invisible aids in a wide variety of mobility support devices. These products ensure that electronics, engines, lighting, and security systems function seamlessly, contribute to environmental protection, and make electromobility possible.



Maintaining sustainable business relationships in order to work together on products for a better future is an important goal for us. Therefore, we have initiated a broad, systematic customer survey in individual business groups. The resulting insights give valuable indications of how the business groups can offer their customers even better performance. You will find the results of this survey in the Products and Solutions chapter.

I hope you will enjoy reading this Sustainability Report.

Jan Rinnert

Chairman of the Board of Management, CEO
of Heraeus Holding GmbH

ABOUT THIS REPORT

About this report

The second Heraeus Sustainability Report describes our understanding of sustainable economic activity and corporate responsibility. It delineates how Heraeus contributes to sustainable development. The report thus provides new impetus for dialogue with our employees, business partners, additional stakeholders and the interested public.

During the reporting period, the strategic goals associated with our Sustainability Guidelines were operationalized in a roadmap. A crucial component for reaching our goals is to make our sustainability performance measurable, transparent and readily understandable. Therefore, in the Heraeus Sustainability Report we describe the status of implementation and highlight outstanding measures and the involvement of various locations.

Reporting period and scope

This 2018 Sustainability Report covers the period from January 1, 2017 to December 31, 2018. The report also provides information about important activities that took place either before or after that period, up until the editorial deadline in August 2019. The indicators across a broad international reporting framework are based primarily on the year 2018, with a three-year comparison for selected indicators.

The data were compiled via the established management systems in each area of the company. The scope consists of the Heraeus Holding GmbH with its eleven operational business groups (Global Business Units) in 40 countries. It includes examples of sustainability efforts at the local level. In some cases, the scope is limited due to the current availability of data. These instances are noted. We plan to gradually integrate all the locations of our business groups into the report and are now working to expand the relevant database.

Heraeus publishes sustainability reports every two years. The next report is expected to appear in 2021 and cover the years 2019 and 2020.

Contents and reporting standard

We selected the topics according to their significance and the key expectations of our stakeholders. The contents were then weighted based on the corporate strategy and industry-specific topics. In each chapter, the relevant challenges and measures are described. The overview of our roadmap and the final chapter summarize all the important data and facts.

Our reporting already follows the guidelines of the GRI (Global Reporting Initiative) and should be further developed in the coming years to yield a GRI-compliant report.

Format and contacts

This report is available on our website in German and English for download by anyone interested at www.heraeus.us/responsibility.

Contact for questions and comments on the Heraeus Sustainability Report:



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COMPANY PROFILE

A family-owned portfolio company



COMPANY PROFILE

About Heraeus

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned portfolio company. The company's roots go back to a pharmacy operated by the family since 1660. Today, Heraeus combines businesses in the environmental, energy, electronics, health, mobility and industrial applications sectors.

In the 2018 financial year, Heraeus generated total revenues of €20.3 billion, with approximately 15,000 employees in 40 countries. Heraeus is now one of the top 10 family-owned companies in Germany and holds a leading position in its global markets.

With technical expertise, a commitment to excellence, a focus on innovation and entrepreneurial leadership, we are constantly striving to improve our performance. We create high-quality solutions for our clients and strengthen their long-term competitiveness by combining unique material expertise with leadership in technology.

High tech from Heraeus sailed into outer space 50 years ago, as part of the first moon landing: Triple prisms made of quartz glass still make it possible to reliably measure the exact distance from Earth to the moon. In addition, cubes made by Heraeus with a gold-platinum alloy will soon penetrate even farther into space to detect gravitational waves whose existence Albert Einstein described in theory more than 100 years ago.

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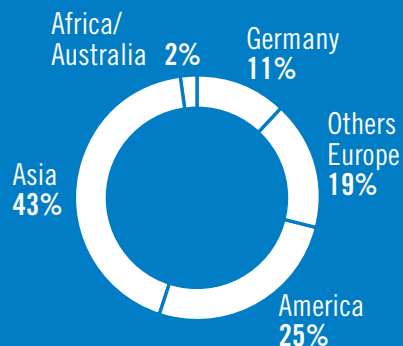
Expenditure for research and development measured in terms of revenue not including precious metals.

15,000 EMPLOYEES IN 40 COUNTRIES

€20.3 BILLION TOTAL REVENUES

PRODUCT REVENUES EXCL. PRECIOUS METALS

by region



TOP 10 FAMILY-OWNED COMPANY

in Germany with leading position in its global markets

As of: Dec. 31, 2018

COMPANY PROFILE

Global Business Units

The Heraeus Group is organized under the umbrella of Heraeus Holding in eleven market-oriented operational units called Global Business Units (GBUs).

Heraeus Precious Metals is a world leader in precious metals services and products as well as in trading precious metals used in industrial processes. This unit brings together all the activities in the precious metals cycle, from trading to precious metals production to recycling. In addition, Heraeus Precious Metals ranks among the world's largest refiners of platinum group metals (PGM).

Heraeus Electronics is one of the leading manufacturers of materials for assembly and integrated circuits in the electronics industry. The company develops sophisticated materials solutions for consumer electronics and computing, the automotive industry, LED technology, power electronics and communications. Its core competencies include bonding wires, assembly materials, thick film pastes, roll-clad bands and substrates, as well as their integration in well-coordinated systems.

Heraeus Nexensos ranks among the worldwide market and technology leaders for platinum thin film technologies and the production of platinum temperature sensors and heaters. The possible applications for precise temperature measurement extend from the automotive industry, household appliances, process technology, energy supply and management to the life sciences, e-mobility and electronics.

Heraeus Epurio is the technology leader in essential materials for capacitor, display and photoresist applications. Its ultrapure special chemicals are a critical component in the semiconductor, electronics and aerospace industries. Heraeus Epurio is active globally, with research, innovation and production sites in Germany, the United States and Asia.

Heraeus Medical is a leader in the field of bone cements and biomaterials for orthopedic surgery and traumatology. In the biomaterials sector, Heraeus Medical focuses on products used in bone and joint surgery. As the industry leader for bone cements, the company has received numerous TOP 100 Awards for ranking among the most innovative of German SMEs.

Heraeus Medical Components offers the entire spectrum of products, from components to modules to complete solutions for the medical technology industry. This includes electrodes for cardiac pacemakers as well as markers for minimally invasive surgery or components for the treatment of vascular diseases.

Heraeus Conamic, with locations in Germany and the United States, is the world's largest manufacturer of synthetic quartz glass for the semiconductor industry and photonics. In addition to its portfolio business with quartz glass, Heraeus Conamic focuses on high-performance materials such as ceramics and innovative composites.

Heraeus Comvance is the world's largest manufacturer of synthetic quartz glass for telecommunications. The product portfolio includes high-purity quartz glass tubes for rod manufacturing, large RIC cylinders as cladding material, and preform service for telecommunications fibers.

Heraeus Noblelight ranks among the market and technology leaders worldwide for special lamps and modules with wavelengths from ultraviolet to infrared. Applications range from analytical measurement technology, infrared emitters for industrial heating processes and arc and flash lamps, to water disinfection, air treatment and sun simulation.

Heraeus Electro-Nite has been the global leader in the field of measurement technology in molten metals for nearly 50 years, offering a wide range of measurement probes, samplers and instruments for metal smelting. The metallurgical industry benefits from complete measurement systems as well as customer-specific samplers for a multitude of analytical tasks.

Heraeus Photovoltaics is a leading developer and manufacturer of silver-based electroplating pastes for the photovoltaics industry. The Heraeus SOL Series of silver pastes for solar cell applications was specially formulated for higher efficiencies and wider processing windows.

COMPANY PROFILE

New markets and business models

Heraeus is active in new markets and business models, maintaining several units organized as startups for that purpose. To improve its ability to benefit from agility and integrated thinking as well as interdisciplinary research and development, Heraeus fosters these business ideas separately from its business units.

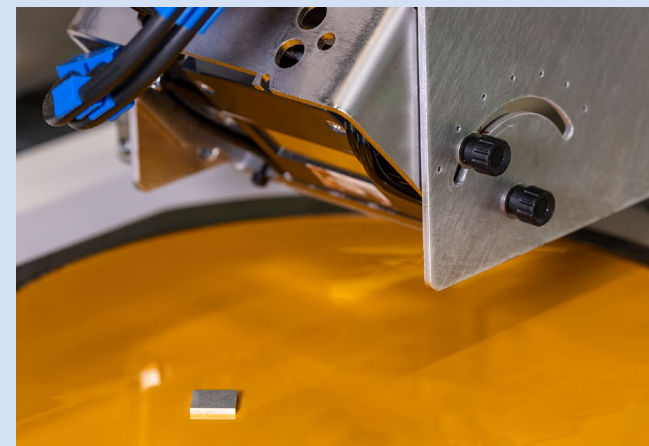
Heraeus Additive Manufacturing develops and tests metal powders and related processes for 3D printing. These applications are increasingly important, especially in the era of the digital transformation and Industry 4.0. With a combined expertise in materials, manufacturing processes and printing technologies, Heraeus Additive Manufacturing provides the highest possible process reliability and efficiency for the customer.



Heraeus Amloy specializes in the development and processing of amorphous metals. With their unique material properties, combining hardness with high elasticity as well as corrosion resistance and biocompatibility, amorphous metals are opening completely new high-tech applications. The near-net-shape process solutions from Heraeus AMLOY are optimally suited for industrial manufacturing.

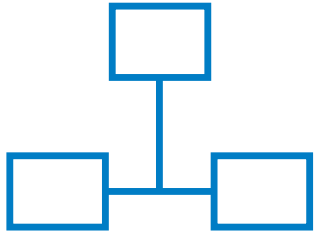


Heraeus Printed Electronics works on developing digital printing processes that enable metallically conductive systems to print efficiently. This innovation, for example, is the basis for the electromagnetic shielding of components in 5G mobile phones.



Heraeus Battery Technology focuses on the optimization of batteries for applications in the automotive sector, in industry and in consumer applications. The company is developing Porocarb, the porous carbon powder that enhances the transport processes in lithium ion batteries, a key component for e-mobility.





RESPONSIBILITY MANAGEMENT

Conducting business responsibly



RESPONSIBILITY MANAGEMENT

Sustainability and Guiding Principles

Maintaining the long-term independence of Heraeus as a family-owned company is paramount at all times and in every corporate policy decision. This basic principle requires us to prioritize long-term economic success over short-term maximization of profits. Therefore, the activities of the business groups at Heraeus locations worldwide are grounded in responsible treatment of financial and natural resources, our social environment, our business partners and our employees. These elements inspire our goal of dedicating our innovation, our products, and our expertise to contributing to a better and more sustainable world.

In our Corporate Guiding Principles, we have set forth the core values that should guide our daily behavior at all Heraeus locations worldwide. Based on these values, in 2016 we established Sustainability Guidelines for our central, interdivisional action areas.



The defined action areas for this report on the topic of sustainability:



PRODUCTS AND SOLUTIONS



PROCUREMENT AND SUPPLY CHAIN



ENVIRONMENT AND OCCUPATIONAL HEALTH AND SAFETY



EMPLOYEES AND CORPORATE CULTURE



LOCATIONS AND FOUNDATIONS

Responsibility governance

Embedding responsibility within the company

At Heraeus, the translation of responsibility as a corporate principle into concrete measures for sustainable practice is primarily managed by the individual business groups and their operational units. Here, the management systems constitute the framework for defining operational objectives, selecting measures and reviewing results based on key indicators. The goal is to develop a uniform group-wide structure for the compliance management systems and facilitate the ongoing optimization of collaboration on sustainability issues.

The Group Responsibility Committee is located at the Group level. Together with the Heraeus Holding Board of Management, this committee will meet regularly to ensure that all Group functions are closely coordinated in this process. Established in 2016, the Responsibility Office under Legal & Responsibility supports the operational establishment and expansion of reliable, efficient processes and structures for exercising corporate responsibility worldwide.

Based on the Sustainability Guidelines, the Group Sustainability Board is defining goals and further developing the sustainability strategy. As summarized in the Roadmap, each of the business groups is using the framework at the Holding level to prepare its own sustainability roadmap.

Sustainability Roadmap

Essential topics	Goal	KPI	Value (2018)	Target date
Responsibility Management				
Integration	Development of a uniform structure for existing compliance management systems for ongoing optimization of cooperation and integration of responsibility management at the Holding level.	No quantitative measurements		2020
	The business groups integrate sustainability aspects into their business processes in regard to Mergers & Acquisition (M&A), investments and the area of Supply Chain Excellence.			2020
Operationalizing	Heraeus develops a framework at the Holding level.	No quantitative measurements		2021
	The business groups prepare their own Sustainability Roadmaps based on the framework.			2021
Products and solutions				
Innovative capacity	The business groups pursue technology leadership in their business segments through innovative solutions.	Group-wide expenditures for R&D as share of total revenues excluding precious metals	6.8%	ongoing
Customer satisfaction	The business groups evaluate their performance in terms of customer satisfaction. To do so, they measure customer satisfaction. A growing number of business groups are using the Net Promoter Score as a metric.	Two thirds of the business groups that have already determined their Net Promoter Score attain Excellence status based on the recommendation rate (>50 points).	Comparability to previous measurements not given.	2021
		The performance score as the mean level of satisfaction across all performances achieves an overall value of at least 4.0.		2021
Sustainability assessments by customers	The business groups pursue the goal of achieving good to very good ratings for the locations evaluated by the EcoVadis sustainability agencies and the Responsible Business Alliance (RBA).	Share of reviews/audits completed with a good or very good evaluation. (Achieving Silver/Gold status at EcoVadis or a score of at least 85 percent at the RBA).	First results for the 2019 reporting year.	ongoing

Sustainability Roadmap

Essential topics	Goal	KPI	Value (2018)	Target date
Procurement and supply chain				
Ensuring due diligence – procurement from high-risk suppliers	The business groups procure only from suppliers that have been tested and approved. High-risk suppliers sign the Code of Conduct for Suppliers or provide an equivalent declaration.	Share of high-risk suppliers that have signed the Heraeus Code of Conduct for Suppliers or an equivalent declaration.	First results for the 2019 reporting year.	2025
	High-risk suppliers are tested on a random basis by an audit on site.	Number of audits for high-risk suppliers.		
Ensuring due diligence – precious metal trading and recycling	Heraeus Precious Metals implements risk-appropriate processes for the purchase and sale of precious metals as well as for the acceptance of precious metals for recycling.	Number of suspicious transaction reports for money laundering in the areas of precious metals trading and recycling.	3	ongoing
Ensuring due diligence – procurement from precious metals suppliers	Heraeus sources its precious metals exclusively from mines, which have been audited on-site to ensure that they comply with the Code of Conduct.	Audit rate for mines	100%	ongoing

RESPONSIBILITY MANAGEMENT

Sustainability Roadmap

Essential topics	Goal	KPI	Value (2018)	Target date
Environment and occupational safety				
Prevention of workplace accidents	The business groups strive to reduce workplace accidents. Safety campaigns and action days are held to promote prevention.	Percentage change from previous year	Decline by 34%	2025
Systematic EHS Management	For each production site, the business groups establish an integrated EHS management system based on international standards (ISO 14001, ISO 45001).	Share of locations with an ISO 14001 management system	49%	2025
		Share of locations with an ISO 45001 management system	33%	
		Share of locations with an integrated management system	20%	
Compliance with statutory and internal EHS standards	The business groups describe the effectiveness of EHS compliance management for each production site in terms of its participation in the Compliance Audit Program.	Share of production sites that have participated in the Compliance Audit Program.	30%	2025
Continuous improvement in EHS performance	The business groups develop and implement ongoing projects for each production site, in order to minimize environmental and health risks and/or reduce consumption costs.	Number of projects implemented to minimize risk.	21 projects	ongoing
		Number of environmental projects implemented to minimize consumption costs.	8 projects	
Employees and Corporate Culture				
Training and continuing education	Heraeus develops digital information and training offerings. The business groups ensure that by 2020, at least 80 percent of employees worldwide will have direct personal access to the offerings.	Share of employees with direct personal access to digital offerings.	65%	2020
		Share of registered employees who have received a standardized annual interview via the tool.	First results for the 2019 reporting year.	2020
Development of promising employees	Each GBU fosters its promising employees and strives to ensure that 50 percent of the identified talented people occupy a position with opportunity for advancement.	Share of identified promising employees in talent programs across all GBUs.	First results for the 2020 reporting year.	2022

RESPONSIBILITY MANAGEMENT

Framework and compliance

Group-wide compliance management

As part of the Compliance Management System, processes are defined to ensure that statutory obligations and voluntary guidelines are observed Group-wide. At the Group level, the Heraeus Compliance Officer (Responsibility Office) is responsible for the management system. The operational implementation of and adherence to the Heraeus Group's and the respective business group's compliance regulations are the responsibility of the managing directors, who are supported by the respective Compliance Officers.

The [Heraeus Code of Conduct](#) constitutes the central and globally applicable framework for the business groups, as well as one of the fundamental elements for ensuring the company's long-term success. It contains binding regulations that are spelled out in eight guidelines that apply Group-wide. The third edition of the Code of Conduct, which took effect in 2018, underscores the importance of sustainable business activity and the personal responsibility of each individual employee.

To ensure that compliance management operates efficiently and in accordance with the standards at all levels of the company, it is reviewed and improved at regular intervals. To that end, the Compliance Officers conduct annual interviews that provide information about training sessions and further implementation of compliance management on site. They also prepare an in-house report about the hierarchical levels of the management system, up to and including the company and Group management.



An important component for improving the entire Compliance System is the harmonization of the various compliance management systems and internal control systems based on the IDW PS 980 standard. In particular, the harmonization is intended to help identify and make use of synergies, as well as to develop uniform documentation.

Relevant training of employees

A worldwide training concept serves to ensure that employees are informed about new regulations in their areas of responsibility and that they know and understand the requirements of the Heraeus Compliance System. In addition, workshops are held in the United States and China with the Compliance Officers for the locations in each region every two years, promoting discussion among them about interdivisional topics and best practices.

Reporting of tips and violations

Any employee who suspects a compliance violation can contact their supervisor or local Compliance Officer. It is also possible to contact the Heraeus Compliance Officer directly by telephone or email in the employee's own native language. In addition, an external independent ombudsman has been appointed, to whom tips and violations can be reported. The Code of Conduct prohibits imposing sanctions or punishment on employees who have reported in good faith a violation or suspected violation of the Code of Conduct.

Guidelines applicable Group-wide

- › Human Rights Policy
- › Guidelines for the Procurement of Products and Services
- › Sustainable Sourcing Guideline
- › Guidelines for the Prevention of Bribery (Entertainment & Gifts)
- › Guidelines for the Conclusion of Consultancy Agreements
- › Guidelines for the Prevention of Money Laundering
- › Guidelines for the Prevention of Antitrust Violations
- › Guidelines for Public Relations and for the Use of the Intranet

RESPONSIBILITY MANAGEMENT

Integrating sustainability into business processes

Monitoring and controlling risks

Heraeus gives high priority to identifying risks in a timely manner and taking them into account in advance of important decisions. Under the Group-wide Risk Management System, a group of experts identifies potential risks that threaten the Group's existence as well as other significant risks and categorizes them in regard to how they should be controlled. All significant risks that can be influenced are documented in a catalog with the corresponding strategies for managing them and measures to control them, as well as an assignment of responsibilities. Human rights-related risks in the supply chain are identified and evaluated once a year in collaboration with the Purchasing and Responsibility Office.

Making sustainable investment decisions

Heraeus intends to add sustainability criteria to the existing risk analysis in the process of mergers with and/or acquisitions of other companies. Also, in the future, above a certain threshold, the risk assessment of projects with a high investment volume (CapEx projects), such as new buildings, new facilities, or relatively large service contracts, will include sustainability criteria as part of the decision for or against a provider.

Excellence through sustainability in production

Sustainability criteria should also be given greater weight in the evaluation of our own processes and locations. The Heraeus Production System (HPS) sets global standards and guidelines along the entire value added chain, in order to ensure a safe, efficient, and high-quality production process. In the future, sustainability aspects should be even more strongly embedded in the HPS maturity assessments and included in the questions in the relevant evaluation sheets during HPS audits.

Stakeholder dialogue

In the cooperative dialogue with our stakeholders

To ensure that we identify significant challenges for our company early on and are able to meet them successfully, we maintain an ongoing dialogue with our stakeholders. Chief among these are our customers, our employees, suppliers and experts from the scientific community, as well as associations, societal interest groups and the shareholders of our family-owned company. In addition, we conduct our own media and field analyses to identify the most important demands placed on Heraeus by the public and policymakers.

In particular, our business segments that are involved in the purchase and sale of high-risk raw materials such as precious metals maintain a continual dialogue with the public, for example with nongovernmental organizations (NGOs) regarding the environment and human rights. We take their advice and comments seriously and ensure that we respond to all requests for information.



Our customers' satisfaction determines the competitiveness and the economic success of our company. With rankings and ratings such as EcoVadis and the Responsible Business Alliance (RBA), we inform our customers about how we at Heraeus conduct our business sustainably and responsibly.

We have intensified the dialogue with our employees. Starting this year, our internal digital portal is accessible on company smartphones and, with selected content, on private smartphones. When we use the portal to inform our employees about Group-wide and site-specific news, they can interact using options such as a comment function.

We take advantage of various communication formats and channels to better understand the needs and expectations of our stakeholders. Our goal is to maintain and strengthen their trust in Heraeus. What we learn from this dialogue with our stakeholders routinely flows into the further development of our corporate strategy and our Responsibility Management.



PRODUCTS AND SOLUTIONS

Sustainability in our core business



A sustainable approach to our business activities

As a family-owned company with a long-term orientation, we have naturally focused on sustainability in our business activities for generations. Sustainability is therefore one of the core elements of the Heraeus Corporate Guiding Principles, along with business performance, a customer orientation, innovation, excellence and internationality.

These elements inspire our goal of dedicating our products and solutions to contributing to a better and more sustainable world. Moreover, we believe that ensuring that our products are safe, of high quality and durable is an essential part of our responsibility. In so doing, we also strive to offer our customers a competitive edge. Our individual business groups are in constant conversation with their clients. They frequently include clients in the product development process.

Our innovative capacity is central to our strong market position as a technology group. We invest in research and development, and we systematically promote startup projects in order to realize attractive business ideas. In this context, we are particularly active in the areas of medicine and health technology, environmental technology and mobility. These solutions are characterized by attractive growth potential as well as their contribution to quality of life and the environment.

Quality management and product responsibility

Focus on product quality and customer satisfaction

We offer our customers high-quality solutions, tailored to their requirements, that are distinguished not only by their technological quality and innovative potential, but particularly by their reliability and long service life. Other essential quality features include design and related services and information. It goes without saying that Heraeus meets its obligations with respect to documentation and due diligence. We do so through our compliance management system [↩\(see the chapter on Compliance Management\)](#).

Quality management

Quality management is of the utmost importance for product quality and customer satisfaction. To ensure that our high standards are met across all sites, our quality management is based on requirements that are uniform throughout the Group and that conform to international norms.

At the Group level, the Group Quality Management Board is responsible for addressing current quality management topics. The Board reviews and improves existing processes, as well as directing initiatives designed to improve the company's quality culture. This also includes designing IT solutions for quality management and for interfaces within the company.

In order to identify and remedy deviations from our commitment to quality, we have implemented a number of processes within the area of quality management. For example, we record and process customer complaints in a Group-wide, uniform process across business units, which allows us to share insights and find the best solutions for our customers.

Our quality management systems are regularly evaluated in the course of internal management reviews. Here, too, feedback from our customers and external certification audits are of particular importance and play an essential role in the development of these systems.

Survey of customer satisfaction.

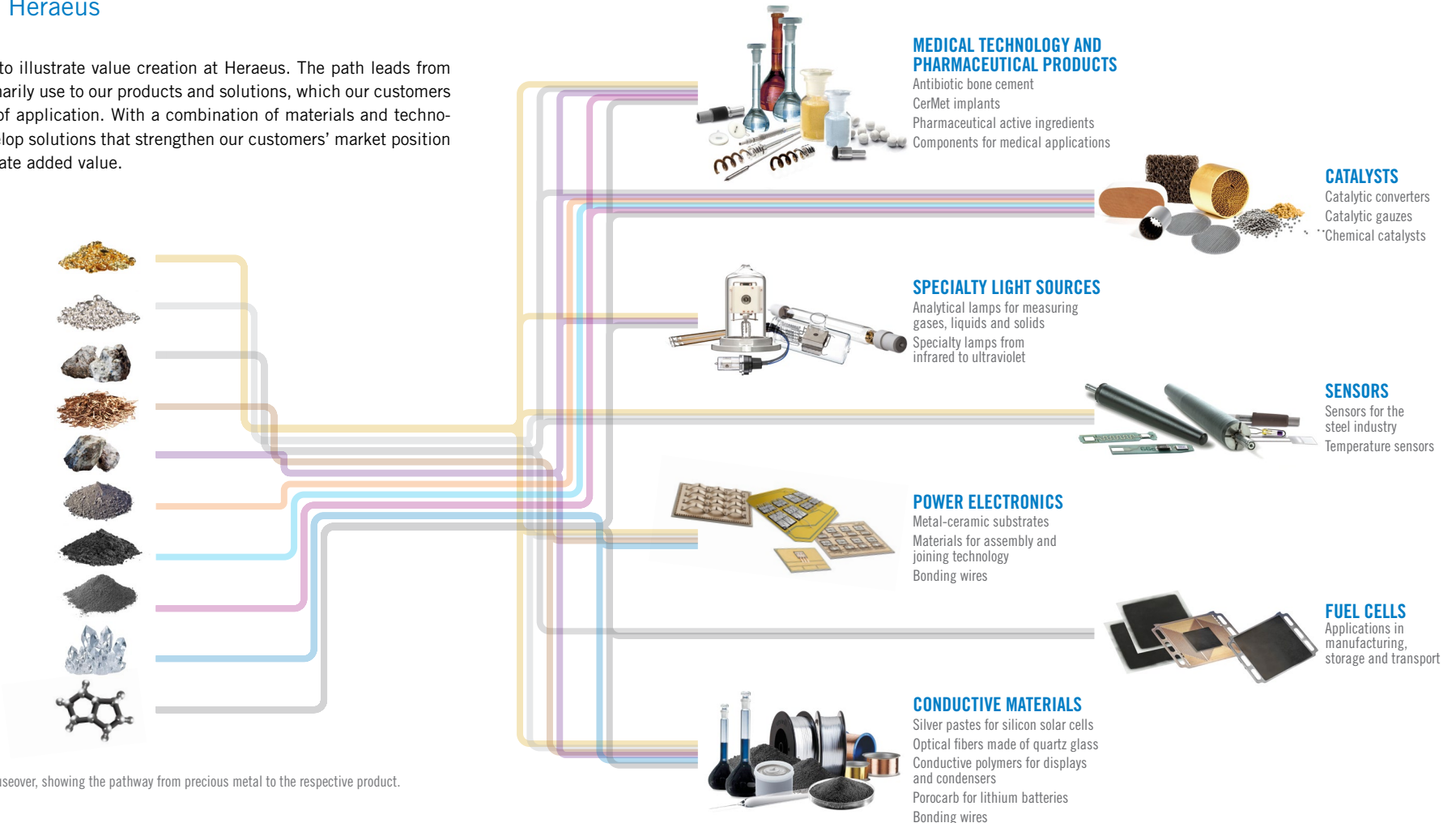
Heraeus takes pride in creating high-quality solutions for the company's customers, thereby strengthening their competitive position for the long term. In order to identify areas for improvement, a harmonized, business-wide monitoring tool was added in 2019 to the most recent online survey of customer satisfaction, with a total of seven business groups participating.

Overall satisfaction of Heraeus customers was found to be consistently "good" to "very good." Particular mention was made of product quality as well as the competent consulting process. At the same time, certain areas were identified in which we could be more successful at meeting customers' needs – in the area of logistics, for example, with respect to access to order and delivery tracking.

PRODUCTS AND SOLUTIONS

Value creation at Heraeus

The examples here help to illustrate value creation at Heraeus. The path leads from the raw materials we primarily use to our products and solutions, which our customers employ in various fields of application. With a combination of materials and technological expertise, we develop solutions that strengthen our customers' market position for the long term and create added value.



Animated graphic, activated by mouseover, showing the pathway from precious metal to the respective product.

PRODUCTS AND SOLUTIONS

Heraeus areas of activity

In the global markets, we focus on businesses related to the environment, health care, electronics, communications, mobility, industrial applications and energy. We create high-quality solutions for our clients, contributing significantly to their value creation and strengthening their competitiveness.



HEALTH

- Preventing infections in endoprosthetics
- Life-prolonging implants
- Helping to cure cancers
- Minimally invasive surgery



COMMUNICATIONS

- Further development of touchscreens
- Higher speeds in message transmission
- Improved performance of microchips



MOBILITY

- Contributing to the electrification of mobility
- Equipment for efficient motor vehicle production
- Emissions control



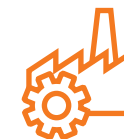
ENVIRONMENT

- Air and water purification
- Reducing greenhouse gas emissions
- Measuring soil quality
- Conserving resources (recycling)
- Cleaning ballast water in the shipping industry



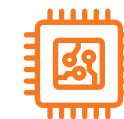
ENERGY

- Efficiency enhancements and accurate methods
- Energy savings



INDUSTRIAL APPLICATIONS

- Accurate, efficient methods
- Process optimization
- Energy savings



ELECTRONICS

- Contributing to efficient electrification in industry and society
- Greater efficiency and miniaturization of consumer electronics

PRODUCTS AND SOLUTIONS

Promoting innovation

Product development in the service of society

The position of Heraeus as a technology leader in the relevant core markets of our global business groups is based on our innovative capacity. In our strategic planning, we concentrate on areas of importance for the future, such as health, electromobility and demographic change. We systematically develop innovative products and solutions to shape trends in these areas. We have identified three important drivers of healthy and organic growth in our business groups: early identification of trends, the development of new business ideas and the expansion of our product portfolio. The innovation landscape has changed dramatically over the past few years. Innovation processes have accelerated. To succeed in this environment, Heraeus is focusing on agile processes, openness and an interdisciplinary approach. Urgent challenges in the areas of health and environmental protection are important factors driving our research and development (R&D). Heraeus is working hard to contribute to appropriate solutions. For example, we are not only assisting our customers in meeting a rising number of legal requirements; we are also helping them do business in a sustainable and effective way.

Research and development

More than 700 Heraeus employees worldwide are involved in research and development. First, we rely on the individual business groups, 80 percent of which have their own R&D units. Second, we combine innovation capacities throughout the Group.

Over **700** R&D
EMPLOYEES
WORLDWIDE

An important management function at the Group level is performed by the Group Innovation Board, which evaluates our business groups' innovation strategies and performance. We have introduced a uniform innovation process for the entire Group, which is intended to maintain and boost our innovation capacity as the key to our business success. In addition, workshops and coaching are designed to make agile methods a more integral part of this process. Heraeus is also opening up its innovation process to external partners. During the reporting period, we continued our efforts to move toward a culture that places more emphasis on open innovation. At the heart of these efforts are innovation partnerships with research networks, universities, startups and other companies. The development and design of these partnerships are among the most important duties of the Head of Corporate Innovation, who was first appointed in April 2018. In the course of active startup scouting, we are looking for new ideas and technologies that might be especially relevant to individual business groups. Through its Group Innovation Board, Heraeus is constantly identifying and evaluating innovation projects in every business group that are capable of significantly reducing the time required to bring strategically relevant projects to market. Each quarter, the Board of Management and the leadership of the business groups collaborate with the heads of innovation and marketing in reviewing the current state of affairs and determining what investments are needed.

Measures for promoting innovation

At the Group level, Heraeus provides systematic support for projects designed to strengthen the innovative capacity of the business groups. These include the **fiftyONE** innovation and communication center in Hanau, Germany, as well as support for startups, digitalization as a funding priority and recognition for outstanding projects.

Making room for innovations

The **fiftyONE** innovation and communication center at Holding headquarters in Hanau, which opened in the spring of 2018, provides room for a new, agile and dynamic approach to work. The goal is to cooperate on innovation projects across areas and functions. Approximately 300 employees are currently working at the center. Its



architecture facilitates professional exchanges. The architects were directed that transparency, openness and ample opportunities to meet and communicate with others were Heraeus's core requirements. The new center is divided into areas of expertise as a way of consolidating the skills that are distributed throughout the Group and bringing together innovators across various functions.

PRODUCTS AND SOLUTIONS

Creating startup structures within the Group

Through a corporate incubator initiative, Heraeus is encouraging the development of new business models and technology platforms within the company. Four startup initiatives are already off to a successful start: Heraeus Battery Technology, Additive Manufacturing (H3D), AMLOY and Printed Electronics.

Processes that are specifically tailored to the needs of the corporate startups are crucial for the growth and development of corporate startups. To facilitate rapid decision making, Heraeus has created lean structures and provides corporate startups with easy access to financial resources. The startups are under the direct authority of the Board of Management and submit a quarterly report to the Board on their financial situation, progress in product development and other commercial activities.

In addition, as part of its active scouting activities, Heraeus looks for new ideas and technologies that might be relevant to the individual business areas. With the help of the Heraeus Accelerator, the company is seeking to intensify its cooperation with external startups while placing more emphasis on open innovation. Preparations began in 2018, and the Accelerator has been in operation since mid-2019. Suitable startups were selected by means of a pitch procedure. Over a limited period of time, these startups have the opportunity to work with Heraeus to develop their projects, taking advantage of the company's expertise and infrastructure.

In June 2018, Heraeus expanded its access to startups by investing in Emerald Technology Ventures' Industrial Innovation Fund. Emerald is a globally recognized investment firm that is active in the areas of energy, water, advanced materials and industrial IT. Here, too, Heraeus can benefit from the advantages of an open approach to innovation as it works with other multinational industrial companies in Europe, North America and Asia.

Shaping digital change

One of the main tasks of Research and Development is to take advantage of the potential of digitalization to benefit Heraeus. In our newly created Digital Factory, specialists, digital consultants, software developers and data scientists are engaged in Heraeus's digital transformation. The task of the IoT Center that was established there is to develop the area known as the Internet of Things (IoT), which will play an important role in the future. Since February 2018, IoT specialists have been working with production and logistics experts to develop new approaches to digitalization for the Group.

Recognizing outstanding innovation projects

Since 2003, Heraeus has paid tribute to in-house researchers and developers with an innovation award honoring their outstanding ideas and achievements. This award has been presented as part of the Heraeus Awards since 2016. It recognizes Heraeus's most successful projects in the categories of Innovation, Supply Chain, Commercial, Responsibility, Digital Transformation and Leadership. More than 150 applications from nearly every business segment were submitted in 2018.

Outstanding ideas

In 2018, the award in the Innovation category went to Heraeus Medical Components, which developed an innovation to benefit patients whose right and left ventricles no longer pump synchronously. To treat this condition, the Heraeus Medical Components project team developed a special quadripolar lead called AXONE – the world's smallest. The jury singled out close cooperation with customers and partners on this innovation for special praise. Heraeus Precious Metals won in the Digitalization category. The project team created a platform that allows customers to conduct their precious metal transactions completely digitally – from trading to recycling. The jury particularly appreciated the team's consistent focus on benefits for the customer.





PROCUREMENT AND SUPPLY CHAIN

Sourcing and responsibility



Sustainable procurement and responsibilities when trading in precious metals

Heraeus's business success depends in large measure on the company's suppliers, and Heraeus strives to maintain long-term business relationships with them. Since a shared commitment is necessary for sustainable value creation, Heraeus involves suppliers in the formulation of its strategy for sustainable action.

Procurement at Heraeus is aligned with the requirements of the various business groups, and to that end we maintain numerous supplier relationships. The purchasing and sale of precious metals are particularly important in this context. Precious metals are traded, made into products and recycled as valuable raw materials by the Heraeus Precious Metals business group. Along with platinum group metals, gold and silver are becoming increasingly important to the Group, following the conclusion of the acquisition of Argor-Heraeus [\(see also the separate Sustainability Report from Argor-Heraeus\)](#).

Heraeus is conscious of the special responsibilities that are associated with doing business with precious and other high-risk metals. In certain mining regions, there is an increased risk that sales of raw materials will be used to fund civil wars and armed conflicts. In certain countries, moreover, precious metals are traded that have been mined illegally and without taking measures to protect people and the environment. Our management approach focuses on the procurement of and trade in precious and other high-risk metals, owing to the value and importance of these raw materials.

Management of suppliers

Heraeus's business groups are committed to ensuring that value chains are sustainable. To that end, suppliers are expected to comply with the requirements for suppliers listed in the Code of Conduct.

These include abiding by laws and international standards as well as ensuring fair, safe working conditions and environmental protection within the company. Heraeus reserves the right to terminate contracts without notice in the event that suppliers fail to meet these obligations.

It is incumbent upon Heraeus to exercise a high level of due diligence, which we underscore in our Supply Chain Due Diligence Policy. Accordingly, our company-wide Sustainable Sourcing Guideline provides general as well as precious metals-specific procedural instructions for the selection and regular evaluation of suppliers. The guidelines specify the evidence of business integrity that our business partners are required to provide, particularly in the areas of precious metals trading and recycling. All new precious metals suppliers are also required to sign our Code of Conduct for Suppliers of Precious Metals prior to signing a contract.

Management and responsibilities:

Central procurement is charged with conducting general risk assessments and audits on site. In separate processes, the Heraeus Precious Metals business group checks to make sure that the precious metals come from ethical sources. Requirements differ by the source of the raw materials. Precious metals come to Heraeus as primary raw materials from mines, as industrial secondary raw materials from our customers, or as products of foundries. Heraeus Precious Metals requires foundries to provide evidence of certification in accordance with internationally recognized standards. It establishes direct business relationships with mines only if it is possible to review and document compliance with our requirements through an audit.

Compliance Management assesses compliance with legal requirements and guidelines in all business areas [\(see also the chapter on Responsibility Management\)](#). Special review processes have been established for precious metals and high-risk raw materials. Heraeus offers regular training sessions for employees on the trading and recycling of precious metals to promote adherence to our compliance guidelines.

Since 2012, Heraeus has regularly arranged for an independent third party to audit its due diligence processes in accordance with the standard of the highly regarded London Bullion Market Association (LBMA). We follow all of the auditors' recommendations in the interest of the continual improvement of our processes. In this connection, we engage in dialogue with partners in business, government and civil society. As a member of a number of precious metals associations at the national, European and international levels, for example, we are committed to the continual improvement of review standards, particularly with regard to gold, silver, platinum, palladium, tin, tantalum and tungsten. These organizations include the International Platinum Group Metals Federation (IPA) and the German Precious Metals Association (FVEM).

The auditor's report is available to the public. Each year since our first LBMA certification in 2012, an independent third party has confirmed that our processes and systems meet the requirements of the LBMA Guidances.



LBMA Guidances

The London Bullion Market Association (LBMA) is an international organization that coordinates trade on the London Bullion Market, one of the most important international off-exchange trading centers for raw materials. The main mission of the LBMA is to ensure the quality of the fine gold and silver that are traded. For that purpose, it publishes a Good Delivery List that is limited to companies whose fine gold and silver bars meet a certain standard for size and pu-

urity. Since the beginning of 2012, refineries that trade fine gold or silver on the London Bullion Market are required to implement its Responsible Guidances. These are closely aligned with the OECD Due Diligence Guidelines and apply not only to gold and silver, but also to other metals that carry risks. Refineries document the origin of traded metals so that they can be traced from the mines to the London Bullion Market. Reciprocal recognition by other standards, such as those of the World Gold Council (WGC) and the Responsible Jewellery Council (RJC), is harmonizing audit and monitoring procedures and promoting traceability throughout the value chain. Furthermore, the Responsible Guidances are intended to make it easier for companies to implement Section 1502 of the Dodd-Frank Act (DFA). The review reports are available to the public. Consistent implementation is reviewed by third-party auditors and monitored by the LBMA. [See audit report from Heraeus](#)

Ensuring due diligence

Identifying high-risk suppliers

To identify significant risks, our Procurement department regularly conducts a systematic risk analysis of suppliers. This allows us to identify high-risk suppliers and subject them to special scrutiny.

At regular intervals, we conduct a site-specific risk assessment of all orders, taking into account such criteria as the location of the suppliers, with a view to Transparency International's Corruption Perception Index. Along with specific places of origin, certain raw materials are assigned to the risk group. Among them are only precious metals, but also cobalt, tin, tantalum and tungsten. We conduct a separate review and audit procedure in response to risks posed by precious metals suppliers.

Our goal is to receive confirmation by no later than 2025 from all high-risk suppliers that they are in compliance with the requirements outlined in our Code of Conduct for suppliers. The audit procedure, which is becoming increasingly digital and automated, takes place on the HeraPro supplier portal and is based on a comprehensive self-assessment. As part of the quality audit, we have also been evaluating suppliers with respect to social and environmental issues since 2016. If there is any doubt about the accuracy of the information provided, we request documentation. Suppliers of high-risk raw materials are a particular focus of Heraeus's efforts to ensure due diligence. Since 2018, Heraeus has therefore been conducting on-site audits of a random sample of high-risk suppliers to determine whether they are in compliance with the Code of Conduct for suppliers.

The quality audit takes into account the following social and environmental concerns:

- › Ensuring occupational health and safety
- › Compliance with laws against child labor
- › Proscription of forced labor
- › Payment of a living wage
- › Freedom of association
- › Sustainable use of resources
- › Compliance with environmental regulations

Compliance check in the purchase and sale of precious metals

Because of the elevated risk associated with mining and trading precious metals, we have created a database containing the risk profile of each of our precious metals suppliers. Using an IT-supported, standardized review process, we analyze and assess the risk variables at fixed intervals. Our high standards for selecting and evaluating precious metals suppliers reflect our desire to do our part to ensure that precious metals come from sources that meet Heraeus's standards. Suppliers are therefore required to respect human rights and comply with applicable standards for workplace safety and environmental protection as well as the laws of the respective countries. The compliance review and additional safeguards are also designed to ensure that business relationships cannot be indirectly abused for purposes of organized criminality, such as money laundering, corruption or VAT fraud. For precious metals suppliers, listing requires a positive compliance check.

Selected criteria for the compliance check, which are reviewed based on documentation:

- › **Review of the location of a business partner's headquarters and type of company**
- › **Review of the industry**
- › **Online screening, in some cases conducted by commercial database suppliers**
- › **Verification of bank information**
- › **Review of senior management and the beneficial owner**
- › **Review of the material's origin and composition**

All of Heraeus's precious metals suppliers undergo a compliance check every one to three years, based on the respective risk assessment. If there is cause for suspicion, an investigation is carried out. In keeping with the prevailing legal requirements, allegations of money laundering related to the trading and recycling of precious metals are reported to the responsible authorities.

Enhanced requirements for direct purchases from precious metals mines

Direct purchases from mines require a review of compliance with the Code of Conduct for precious metals suppliers, in the form of an on-site audit. As a rule, Heraeus requires an audit by a respected independent organization. If no audit has been completed, a Heraeus expert conducts an independent review of the mines using a list of criteria based on the LBMA's Questionnaires for Mined Materials. If any reasonable doubts remain after that review, we require our partners to submit additional documentation. If there are still doubts, we refrain from entering into a business relationship or terminate any existing relationship.

With respect to its suppliers, Heraeus recognizes the following memberships and standards for a conflict-free value chain:

- › **London Bullion Market Association (LBMA)**
- › **London Platinum and Palladium Market (LPPM)**
Certification of the ethical production of gold, silver, platinum and palladium.
- › **Responsible Jewellery Council (RJC)**
Certification of ethical and conflict-free gold production and procurement practices.
- › **World Gold Council (WGC)**
Standard for gold-mining companies that are active in conflict regions. WGC supports the LBMA standard.
- › **Conflict-Free Sourcing Initiative (CFSI)**
Support for companies in various industries whose supply chains include conflict minerals.
- › **Fairtrade Sourcing Program**
Introduced by Fairtrade to help small farmers increase their revenues and secure a sustainable future.
- › **Fairtrade Standard**
Certification of gold from craft workshops and smaller mining companies that meet the highest standards for ethical, responsible action.

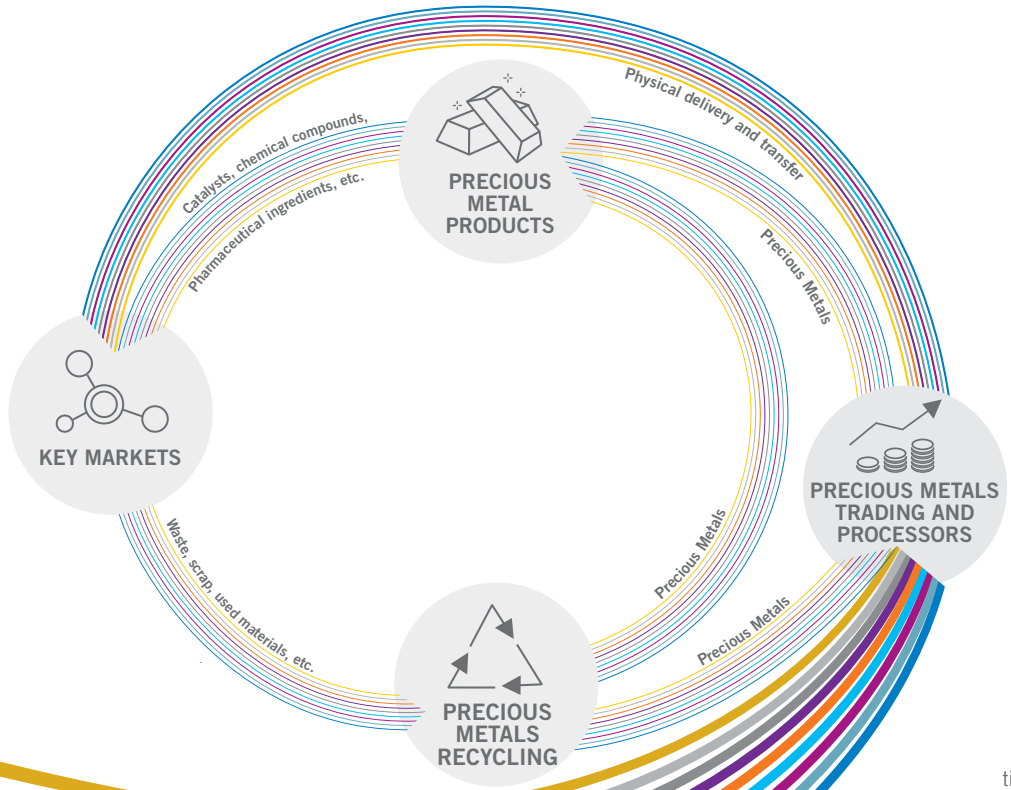
PROCUREMENT AND SUPPLY CHAIN

Recycling at Heraeus

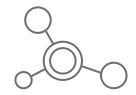
Precious metals are an indispensable raw material for many production processes and products. Owing to their special properties and high value, they are in great demand. Seamless transparency regarding the source of precious metals is of crucial importance for all concerned.

Up to 30 percent of the global supply of platinum metals and gold is already derived from the recycling of precious metals – a significant contribution to environmental protection and sustainability. Heraeus will continue to expand its own recycling capacities in the future.

- Gold 
- Silver 
- Platinum 
- Palladium 
- Rhodium 
- Ruthenium 
- Iridium 
- Osmium 
- Rhenium 



We have core expertise in processing materials containing precious metals: thermal pre-treatment of materials and catalysts containing precious metals, sampling and analysis, precious metals recycling processes as well as logistics and waste management.



Precious metals are found in electronic products, vehicles, medical applications and environmental technologies. They are also used in production processes, for example as catalysts in the chemical and petrochemical industries.



With our trade locations, we have a presence in the world's major time zones and are able to keep an eye on the global precious metals markets. Heraeus is a trustworthy and competent business partner for precious metals processors.

Conducting our own mine audits to ensure that standards are met

Dr. Müller-Schäfer, how long have you been carrying out mine audits for Heraeus?

I completed my first mine audit in October 2012. We are one of only a few companies in the global precious metals sector that have developed their own mine audits and personally conduct those audits on site.

Which mines need to be audited?

Audits are necessary for essentially all precious metals. Our Sustainable Sourcing Guideline contains an internal requirement that gold, silver and platinum metal mines be audited, and in this context we make no distinction between the various precious metals.

Do you conduct audits of all mines from which Heraeus purchases these precious metals?

No, we audit only those mines for which no recognized independent audit report is available. These are often medium-sized mines. In many cases, large mines have already been certified by independent auditors, or they may even have published their own sustainability reports. Such mines are not audited again unless a compliance check identifies anomalies that require us to conduct an additional audit.

What are the most important criteria when you carry out an on-site audit of a mine?

Our audit encompasses a variety of areas. The most important are workplace safety, environmental protection and fair treatment of employees.



As head of precious metals security, Dr. Jürgen Müller-Schäfer is responsible for mine audits, among other things. Heraeus is one of only a few companies in the global precious metals sector that have developed their own mine audits and conduct their own on-site audits.

What does that mean, in concrete terms?

To evaluate workplace safety, for example, we look at the relevant training materials and work records as well as emergency plans. For instance, emergency telephones must be accessible even at a depth of 3,000 meters, and a rescue team must be on standby in case of emergency. With respect to environmental protection, we request information on waste water and documentation of the frequency with which this information is reviewed by the authorities, as well as information on any complaints. We also monitor whether employees are treated fairly. We regard freedom of association as an important right, and it is also included in the Heraeus Supplier Code of Conduct and our Human Rights Policy. Mine workers must be paid considerably more than the respective country's minimum wage. We ask for payroll information from on-site human resources departments and check that information by holding private conversations with mine workers.

When were you last involved in an audit, and are there plans to conduct additional audits?

The last time was in 2018, when I was in Laos. This year, another mine in Laos will be audited, and a repeat audit is planned in the Philippines. As a rule, follow-up audits are scheduled every five years.

PROCUREMENT AND SUPPLY CHAIN

How costly is it for Heraeus to conduct its own audits?

It is very costly, in terms of both time and money. Most of the mines are located in very remote areas and are difficult to reach. Each visit to a mine takes up to a week, including travel time to and from the mine and the audit itself. That does not include the time needed for preparation and research, or the follow-up work after every audit.

What is done with the audit reports after you visit a mine?

First of all, we use them internally as a basis for deciding whether or not to enter into a business relationship with the mine. Reports also go to the mine operators, and our auditor sees these reports in connection with our LBMA certification.

Has a decision ever been reached not to work with a mine after an audit was conducted?

Since we do meticulous research in advance, some mines have been rejected as suppliers even before an on-site audit has taken place. In many cases, however, this was because the mine's output was so small that it wasn't worthwhile to conduct our own audit – we wouldn't have been able to guarantee compliance with our standards. So far, we haven't rejected any mines after an audit was completed. But we imposed certain conditions on one mine following an audit; they involved workplace safety. We will visit this mine again next year and conduct a repeat audit to review the improvements that have been made. In many cases, however, the standards on site are higher than we had anticipated.



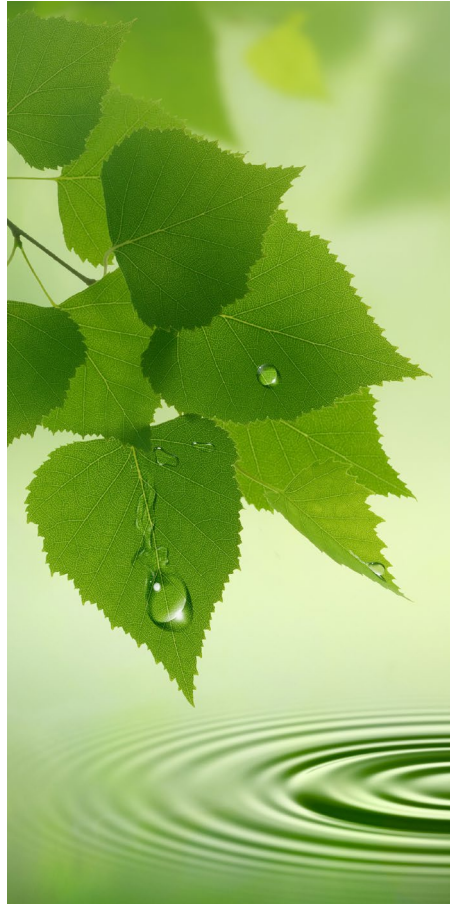
Mine audit in the Philippines in March 2015





ENVIRONMENT AND OCCUPATIONAL HEALTH AND SAFETY

Sustainability in production



ENVIRONMENT AND OCCUPATIONAL SAFETY

Sustainability in production and beyond

We bear responsibility for ensuring safe working conditions, protecting the environment and conserving natural resources at our sites. Our actions are guided by the precautionary principle, in the interest of proactively preventing damage to the environment and health, or keeping such damage to a minimum. This is also reflected in our safety culture, which embraces the vision of an accident-free workplace. Supported by a continual process of improvement, we strive in our production facilities not only to use energy more efficiently, but also to further optimize our recycling process and thereby conserve natural resources while also reducing the amount of waste.

EHS Management

Our principles of environmental and health protection and workplace safety are described in an EHS Framework, which contains Group-wide guidelines for 12 action areas along with our ambitious EHS targets.

Responsibilities and management

Responsibility for environmental and health protection and workplace safety (EHS) lies with the business units and their production sites. Accordingly, the EHS Group function determines Group-wide standards and procedures, strategic goals and key performance indicators, in close cooperation with the responsible coordinators in the business units and regions. At the individual sites, operational responsibility for environmental and occupational safety lies with the respective local EHS managers.

We make special efforts to raise our employees' awareness of the importance of each individual's contribution to health, environmental protection and safety. At Heraeus, the guiding principle that "I am responsible for EHS" is reflected in a variety of day-to-day measures.

We offer regular training for our employees, internally and externally, as well as practical exercises that enable them to work proactively and independently. One focus is on providing basic and further training for safety officers, who serve as multipliers at various levels. In 2018, for example, 107 employees received advanced training at all of our German sites, which included workshops in which the participants engaged in role-playing related to dangerous company-specific situations.

Group-wide standardization

The main tasks of the Group function are to create a global EHS process landscape and to harmonize and document the relevant processes. As part of the Group-wide initiative to promote excellence, we are assisting the production sites in creating integrated EHS management systems in a step-by-step process. To achieve this objective, we defined a standardized framework based on internationally recognized norms: ISO 45001 for workplace safety and ISO 14001 for environmental management. At the Group level, the effectiveness of the individual EHS management systems is determined by means of the following:

- **Reporting on key performance indicators to monitor the achievement of goals**
- **Documentation of compliance with locally applicable legal requirements by means of an index of legal provisions**
- **Environmental and safety aspects of operational target, revenue and cost planning**

To ensure that all production sites are aligned with the defined system standards, the Operations Excellence Group function assesses their implementation, assigning them grades for maturity ranging from "basic" to "advanced" to "expert." Requirements are defined for each maturity level, and the degree to which they are met is determined in an internal audit. As each audit is conducted, agreement is reached on the next steps to improve the management system and increase its effectiveness. By the end of 2018, 20 percent of production locations had already established a management system that meets the highest standard. In addition, 49 percent had created an environmental management system in accordance with ISO 14001, and 33 percent had established a management system for workplace safety in accordance with ISO 45001.

Heraeus is required to comply with the applicable regulatory requirements for health and environmental protection and workplace safety, which are defined by numerous administrative provisions as well as technical policies and authorizations. Together with our Heraeus EHS guidelines, these form the basis for everything we do.

EHS compliance management is designed to ensure compliance with legal requirements and internal guidelines. This is monitored by compliance audits at regular intervals and by the sites' EHS managers. An IT-supported standardized procedure ensures that the obligations of the individual areas are always kept up to date. By the end of 2018, approximately 30 percent of production sites were participating in the compliance audit program and were able to document the performance of their EHS compliance management.

ENVIRONMENT AND OCCUPATIONAL SAFETY

Environmental and safety aspects

Sustainability and environmental protection in production

At our production sites, we identify important environmental and safety concerns and formulate appropriate goals and measures.

Energy and resource efficiency

Throughout the Group, we seek to increase energy and resource efficiency in production. The individual business groups define relevant operational objectives and devise measures for achieving them. In addition to optimizing existing production sites and procedures, we are investing in energy efficiency when building structures at new sites.

Innovative products in an innovative building

A new Heraeus Medical production building at the Wehrheim site is creating room for further innovations in the field of specialized medical products – in a building that is pointing the way to the future. Short transit routes and cutting-edge climate control technology, which recaptures up to 70 percent of the heat expended, protect the environment, while an open floor plan allows employees to work in bright, open surroundings.

One of the products manufactured here is bone cement, which is helping many people with degenerative joint disease to maintain a high quality of life.



The energy-intensive processes involved in producing quartz glass and precious metals are particularly relevant for the company's energy balance. At every production site, we determine what measures can be taken to conserve energy and resources. Overall, in reporting year 2018 our production sites were involved in 29 projects designed to minimize environmental and safety risks and/or to lower consumption costs. In the future, we will document the energy intensity of selected business groups to demonstrate the effectiveness of these measures. Furthermore, the frame of reference for the environmental indicators will be continually expanded in coming reports.

Improving company performance with integrated management systems

Through the introduction of integrated management systems for occupational safety and environmental protection, Heraeus is reinforcing its processes, allowing information to flow more quickly and making work processes more efficient. A pioneer in this context is Heraeus Electro-Nite's Diadema site in Brazil, which put in place an integrated management system as early as 2008. The advantages are obvious: It avoids duplication of effort and reduces costs. KPIs make it possible to monitor processes more effectively and formulate recommendations for action. This has a positive effect on company performance.

Focus on precious metals recycling

Today roughly 30 percent of the precious metals traded worldwide come from secondary sources. This reduces the burden on the environment and conserves resources. Energy requirements are 70 to 100 times lower, and the carbon footprint is approximately 200 to 300 times smaller, than when these metals are extracted from mines. As a recycler of precious metals, we are thereby improving the environmental balance of the precious metal processing industry, closing

an important supply gap and reducing the dependence on imports of countries with few natural resources.

Our capacities for precious metals recycling have been expanded since the 1950s. Today Heraeus is one of the world's largest precious metals service provider and the only one that recycles all precious metals. Recycling sites can be found in the United States, Germany, Switzerland, South Africa, India and China. The processes we have developed also make it possible to recycle materials with low concentrations of precious metals – such as catalytic converters – economically and in an environmentally friendly manner. When precious metals are recycled for industrial chemical processes, a very large percentage of the precious metals remains in circulation. The energy that Heraeus saves each year by recycling precious metals is enough to heat a small city.

Heraeus focuses particularly on the recovery of platinum metals. In 2018, approximately 140 tons of platinum and palladium were recycled. Precious metals in industrial catalysts – such as platinum gauzes for the fertilizer industry and bulk-material catalysts for industrial chemical processes – are the primary sources of raw materials for this purpose. The recovery rates in these processes far exceed 90 percent. We are continually developing new recycling procedures aimed at recovering as much precious metal as possible from a variety of products.

Energy consumption in MWh¹

2017	2018	Change in %
481,303	519,312	+ 7.9

¹ This figure represents the aggregated energy consumption of 14 production sites, from various energy sources (cf. table with key figures).

ENVIRONMENT AND OCCUPATIONAL SAFETY

Precious metal produced in 2018

Gold	Silver	Platinum	Palladium
467 tons	1,116 tons	60 tons	77 tons

Chemicals safety

Our production involves the processing of more than 70,000 chemicals. Human and environmental safety are our top priority in all production processes. We therefore make available safety data sheets on all of the chemicals we use and on our products, which list essential properties of the materials and outline measures that are necessary for health and environmental protection, as well as for workplace safety. These data sheets are centrally recorded using database-supported software, and they are regularly updated.

Heraeus has a special responsibility for evaluating and registering the materials we produce in accordance with REACH, the European regulation on chemicals. These include precious metal-based materials in the respective tonnage levels and other, mostly carbon-based, materials. With the support of various consortia, Heraeus has so far registered more than 100 materials. We keep the registration dossiers up to date. We track the materials using a substance volume tracking system, thereby ensuring that they can be used safely by our customers.

A new warehouse to reduce distances traveled

The logistics areas for scraps containing precious metals and hazardous materials, which were previously distributed throughout the site, have now been combined under one roof in Hanau, in a new scrap and hazardous substances warehouse that is the size of 10 basketball courts. This has significantly reduced the distances traveled when moving these materials by forklift, thereby minimizing the danger of accidents. By using electric rather than diesel-powered forklifts, we have also been able to reduce noise and pollutant emissions.



At the same time, we are seeking to eliminate or minimize the use of dangerous substances in the production process.

Safety through new solutions

To ensure that UV lamps function flawlessly, the quartz glass tubes used in production must be absolutely clean. A new, environmentally friendly process using ultrasound is replacing the use of hydrofluoric acid to clean these tubes. In addition, thanks to a new procedure, Heraeus Noblelight no longer needs to use radioactive thorium paste in the production of UV lamps.



ENVIRONMENT AND OCCUPATIONAL SAFETY

Workplace and equipment safety

Heraeus attaches great importance to the safety of our employees and protecting them against work-related accidents, injuries and illnesses. The business groups are therefore responsible for establishing management systems to ensure workplace and equipment safety at their sites. We issue additional internal guidelines, beyond the legal requirements, when necessary to ensure the safety of our employees, the employees of other companies and visitors.

Safety requirements differ significantly by business segment and area of application. These differences are taken into account when drawing up specific strategies. The production of precious metals and quartz glass is a particular focus, since high pressure and temperatures of up to 5,000 degrees Celsius pose increased safety risks. We also focus on production processes that involve the use of hazardous materials.

Number of work-related accidents in the Group

Work-related accidents resulting in loss of work

2017	2018	Change in %
165	109	-34

Group-wide, we have been able to reduce workplace accidents by 34 percent relative to the previous year. As in earlier years, no injuries have resulted in death during the reporting year. The slogan “Vision of Zero” underscores our conviction that any accident at Heraeus is one

too many. Prevention is critical, so that dangers can be recognized in advance and avoided. We systematically review and document risks in each working environment by carrying out risk assessments and regular inspections. We also analyze the causes of every accident. The results of these analyses allow us to implement targeted countermeasures. For example, in recent years Heraeus has invested in structural shielding measures and better personal safety equipment to protect against toxicological and allergenic substances. We test the effectiveness of these measures by means of regular safety inspections and checkups performed by the company physician.

By establishing a Group-wide culture of safety, we are supporting our sites all over the world. The Task Force Safety project group, which was created at the beginning of 2018, consolidates measures aimed at promoting occupational health and safety in all areas of the company. The emphasis is on education and communication in an effort to raise employees’ awareness of safety risks and preventive measures. Key topics, which change from time to time, address risks and approaches to prevention. During the reporting period, a variety of sites once again conducted campaigns to educate employees about safety risks and protective measures. Safety Flashes, which simulate accident situations, are also published. Every location practices proper behavior in emergencies specific to that area, for example by conducting fire extinguisher training or safety alarm drills. Sites located in residential and urban areas are subject to stricter safety requirements.

As a member of several associations, Heraeus promotes active communication between industry and the public. Here too, the focus is on topics such as the environment, safety and health. As part of this dialogue, the IPA is engaged in fighting work-related allergies caused by certain platinum salts, for example. Heraeus supports this engagement by actively participating in the respective association committees. This work focuses on diagnostics and the global standardization of specific measures to promote work safety.

EHS engagement in associations

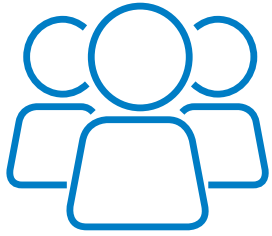
- › **International PLATINUM Group Metals Association (IPA)**
- › **German Precious Metals Association (FVEM):
Chairmanship of the environmental committee**
- › **European Precious Metal Federation (EPMF):
Member of various subcommittees, for example in REACH**
- › **Federation of German Industries (BDI):
Committee on the environment, technology and sustainability**

SITE SAFETY DAY

Work safety worldwide

Work safety should be an integral part of the everyday work lives of all Heraeus employees – all over the world. This is why special Safety Days were held in 2018 at nearly all of our global sites. At the individual locations, presentations and practical exercises raised employees' awareness of safety issues. Activities included information stands, live presentations involving practice in extinguishing fires, a collision simulator and other safety-related events.





EMPLOYEES AND CORPORATE CULTURE

The employer's responsibility



The employer's responsibility

The success of Heraeus lies in the hands of our workforce of approximately 15,000 employees. Their competence, motivation and commitment to innovation are crucial factors in global competition.

Human Resources Management

With the attractive working conditions and diverse career opportunities we offer, Heraeus occupies a favorable position in the labor market. Our appeal as an employer is crucial for the recruitment and retention of motivated and committed talent. In this connection, we talk openly with our employees about what an ideal workplace should look like.

We expect and encourage respectful interactions as the basis for fruitful cooperation. In our human resources strategy, we recognize that leadership and excellence are crucial strategic levers for achieving our goals and moving the organization forward. We train our employees to prepare them for the demands of the future, including digitalization. We also encourage entrepreneurial thinking.

Naturally, we provide a healthy, safe work environment for our workforce. In addition, we make systematic efforts to improve preventive health care and promote a work/life balance.

Responsibilities and management

Our human resources management principles, guidelines and programs are defined at corporate headquarters in Hanau and apply throughout the Group. Based on those principles and guidelines, HR representatives at the individual sites draw up supplementary arrangements relating to old-age and health benefits and a work/life balance, coordinating with other local companies or with the help of external service providers.

Our corporate values and the Heraeus Code of Conduct, which applies throughout the Group, form the basis for respectful interactions with one another. The Code of Conduct was revised in 2018, and it now places more emphasis on appealing to employees' sense of responsibility for complying with laws and internal regulations. Heraeus is committed to respecting and protecting universally recognized human rights and abiding by the ILO's labor and social standards. These include a ban on child labor, forced labor and any kind of discrimination, as well as ensuring a safe working environment. To underscore this commitment, Heraeus approved a Group-wide Human Rights Policy to supplement the Code of Code of Conduct in 2018. This policy defines not only the relevant principles, but also minimum standards for such matters as age of entry into the company and permissible work hours, along with wages and social benefits. Every employee is expected to report any violations of the Code of Conduct. In addition to the internal contact persons in Compliance Management, an external ombudsman is available [▶ \(see also the chapter on Compliance Management\)](#).

Our corporate culture is characterized by cooperation between employer and employee representatives, based on mutual trust, and open dialogue in employee meetings and performance reviews. In Germany, the fundamental participatory rights of our employees and their representatives are also regulated by legal provisions such as the Works Constitution Act. Employees at all German sites have elected employee representatives.

EMPLOYEES AND CORPORATE CULTURE

Strengthening corporate culture through employee and leadership development

Responsibility, performance, integrity, respect and the willingness to change are integral components of our corporate culture. Our leadership model, which has established a uniform leadership culture all over the world, is a pillar of that culture.



Heraeus Leadership Model

Leadership training

We believe that leadership excellence is the key factor in making our values part of everyday life in our company and achieving our strategic goals for growth. The role of a leader requires training and continual reflection about one's own behavior. Leadership quality is therefore evaluated in the course of annual employee performance reviews, based on qualitative criteria. Leadership qualities have a direct impact on bonuses. Over the past few years, employees and executives throughout the company have engaged in regular discussions of this topic, with the support of human resources management. Through leadership training, we promote our corporate culture and make our executives better leaders.

New ideas in production

In the Outstanding Leadership in Production training program, production managers learn to work with their employees to improve work processes, recognizing that an excellent production landscape is an important factor in boosting our long-term competitiveness. A total of 300 managers successfully participated in this program. Most recently, optimized production processes have increased productivity at Heraeus Conamic and Heraeus Noblelight.

Talent management and succession planning

In the light of demographic change, succession planning for strategically relevant positions is very important. Through our talent management, we seek to identify talent across the entire Group at an early stage, to nurture these talented individuals and to prepare them to take on new responsibilities. This enables us to fill some executive positions and key functions internally, and at the same time to encourage an exchange of knowledge and promote cooperation among the Business Groups and sites.

Our talent initiatives help us cultivate high-potential individuals in the company. Since the program was launched in 2015, we have identified and supported 170 such high-potential employees in their development. As many as 80 percent of participants in the program at the Group level (global talents) have advanced to senior positions.

A well-founded selection process is crucial for hiring the right employees to fill these positions. We are therefore continuing to fine-tune our selection criteria and decision-making processes. The talented individuals who have been selected are increasingly reflecting the diversity of our company, and this strengthens the entire company's ability to innovate and solve problems.

Percentage of women in the Global Talents program

2016	2017	2018
17%	20%	40%

Distribution by countries and regions Global Talents program

Asia	21%	18%
Germany	60%	59%
United States	16%	17%
Other	3%	6%

Employee development and continuing education

We believe that leadership includes promoting the entrepreneurial thinking and responsibility of all employees. We therefore support our employees as they move forward on their individual pathways and prepare them to meet new challenges.

One requirement in this context is regular, individualized feedback from the supervisor as part of the annual employee performance review. During this review, the employee's development potential is discussed and follow-up measures are identified, such as seminars, training sessions and workshops. To ensure a globally uniform standard for these reviews, a new format was introduced in 2018; reviews are now documented digitally in accordance with standardized guidelines. By the end of 2020, it is expected that 90 percent of employees who have registered online will have participated in a standardized annual performance review.



The graphic features three interlocking gears. The top-left gear is labeled 'SUPPLY CHAIN EXCELLENCE'. The top-right gear contains a blue hexagon with a white checkmark. The bottom-right gear contains a white bar chart icon. Below the gears, the words 'TRAINING FACTORY' are written in large, bold, blue capital letters.

Mobile training factories travel around the world

In an effort to modernize global production, three mobile training factories that can be deployed to sites worldwide were launched in May 2017. Employees are trained by participating in the optimization of a simulated cylinder production facility over the course of a day. The mobile training factories are smaller and more flexible than regular factories, so they can be transported more easily from one location in a region to another.

Digital access for all

Digitalization will fundamentally change the workplace in the areas of production and management at Heraeus. The resulting increase in efficiency and flexibility are a competitive advantage and make our employees' work easier. Expertise and a willingness to change are essential for promptly unlocking the opportunities that digitalization provides. As part of the further training we offer, we therefore prepare all employees for the digital future and support them on the path to that future.

This begins with providing access to digital opportunities on a common platform: the Heraeus touch app for employees. This is used to provide information, encourage dialogue and simplify certain processes, such as the submission of applications. We are continually improving Heraeus touch in order to expand services for our employees and create added value, while also making the app easier to use. In our mission of offering digital access for all, we are taking gradual steps to provide personal access to the app for employees who, because of the nature of their jobs, are not yet digitally connected. This applies particularly to production employees whose workplaces do not include a computer. Sixty percent of employees were digitally connected in 2018. By 2020, 80 percent will have gained personal access. With Heraeus touch, employees can access information at any time, including while traveling or on personal devices, and they can communicate with colleagues and participate in learning opportunities. In 2018, the Heraeus touch app was tested by employees at selected locations in Germany, the United States and China. The Group-wide rollout began in 2019 and is expected to be completed in most business units by 2020.



We are continually creating new digital opportunities for our employees' professional development. To that end, since 2018 we have been introducing our electronic learning management system, which provides employees with information about opportunities and allows them to take courses.

Everyone benefits: Knowledge transfer at Heraeus

The distinguished jury at the 2018 Corporate Culture Awards was impressed: Heraeus Comvance received the model corporate culture award for its Train the Team digital learning platform. Train the Team presents the world of Heraeus Quarzglas in Bitterfeld. It offers a great deal of information on that business unit and the entire Group, as well as information about products and processes. It also promotes ongoing learning in the workplace and a new culture of communication.

EMPLOYEES AND CORPORATE CULTURE

Training skilled workers

Our training programs are designed to attract talented young people and prepare them for positions with our company. At our sites, we cooperate closely with educational institutions and systematically seek to recruit their graduates.

In Germany, we have long relied on the country's successful dual education program. More than 40 training and university study programs providing training for careers ranging from machine and equipment operator, skilled chemical production worker and electronics technician to industrial manager and skilled warehouse logistics worker, as well as a dual master's program for holders of bachelor's degrees. A new feature is a dual course of study in the field of computer engineering, reflecting Heraeus's effort to focus more attention on the topics of the future. In addition, we have been supporting three PhD candidates in our doctoral training program since 2017.

During reporting year 2018, 177 people successfully completed a training or dual studies program at Heraeus. They were offered a job with the company or, given the relevant qualifications, the opportunity to continue their studies. At the end of the fiscal year, there were 324 apprentices and dual program students at Heraeus in Germany, an above-average training ratio of six percent. Whenever possible, we hire graduates of our in-house training programs to meet our need for qualified employees.

324
APPRENTICES AND
DUAL-PROGRAM STUDENTS

Fair compensation and company benefits

Heraeus pays attractive, competitive wages, in keeping with the location as well as the requirements of the position and the candidate's qualifications. Employees also receive company social benefits. Whenever possible, we agree on a uniform salary scale in each country through local collective bargaining agreements. In Germany, compensation is governed by collective agreements in the chemical industry and also includes a share in the company's success. For employees who are not covered by collective agreements, we provide performance-oriented compensation, in line with market conditions, through the use of a recognized job evaluation system with defined bonuses. Through our International Assignment Guideline, we ensure that all of the Group's employees working abroad receive appropriate support and compensation commensurate with the kind of work they are doing.

In addition to their salaries, employees may also receive such additional financial benefits as the public-transportation allowance that is provided in many locations. At sites where there is no statutory pension insurance, we make every effort to ensure our employees' financial security in retirement through company-based solutions such as contributing to a pension plan. In the United States, for example, all employees are eligible to participate in a savings plan that we have established with a leading pension insurance provider. We seek to keep our employees as well informed as possible about their eligibility for additional benefits. One good example is the overview that we provide for our employees in Singapore. It outlines the benefits to which they are entitled, such as time off to care for a child or financial support in the event of the birth of a child, their wedding or the death of a close relative.

Work/life balance

We want to support our employees as they seek to balance the demands of their professional and personal lives. Small children require special attention and care. Accordingly, wherever possible we offer flexible work schedules and provide information about local child care options as well as short-term solutions for cases when the regular caregiver is unavailable.

We also support our employees when they are caring for family members and work with them to find the right solution for their situation. Our locations are continually reviewing the needs of our employees and looking for ways to assist them. To that end, we encourage an exchange of information about useful options, across all of our sites.

In the United States, for example, we have put in place a comprehensive advisory system. Through Cigna's Employee Assistance Program (EAP), we help our employees in that country to deal with their personal issues. Employees and their family members can use a 24-hour hotline to establish confidential contact with experienced experts, who can help them directly or put them in touch with a local contact person.

In 2014, we opened an office at the Hanau site that provides advice on issues relating to care for a loved one. It assists approximately 75 employees every year. In addition, the experts at the Heraeus employee assistance service provide help for employees at locations across Germany who are facing unusually stressful situations in their personal and professional lives – in a confidential setting and with absolute discretion, of course.

Employee health

Promoting the health of our employees.

Heraeus cares about the health of all our employees. This is why we often go beyond our legal obligations in our activities aimed at promoting health. We have introduced a company health management program; in Germany, for example, this program is part of a binding works agreement.

Relative to other countries, German law provides for a high level of insurance coverage in the event of illness and also regulates employer contributions. We review the level of protection provided at other locations and contribute financially as needed to ensure that our employees enjoy good health care. For example, we support our employees in the United States and South Africa by contributing financially to the cost of health insurance, which includes special benefits and bonuses in addition to medical coverage.

When it comes to issues of health, we want to provide a point of contact for our employees, a partner they can turn to with confidence. Specific benefits vary by location. In the United States, our employees and their family members are able to consult professional health experts at any time.

OVER
2,700
EMPLOYEES
HAVE PARTICIPATED IN
THE HEALTH PASSPORT
IN THE LAST
5 YEARS

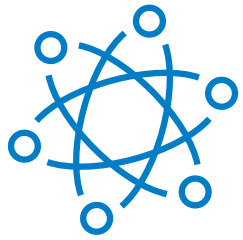
In Singapore, we offer our employees a comprehensive package that includes a variety of health care benefits such as an annual checkup. In Germany, company doctors are responsible for responding to medical emergencies and providing preventive care. If possible, we also offer our employees annual health screenings that include consultations about individual risks. The results of the screenings and any recommendations are recorded in a special health passport. Over the last five years, more than 2,700 employees in Germany have taken part in this program.

Two factors are critical for our employees' performance: an ergonomically optimized workplace and opportunities for physical activity. We therefore pay attention to opportunities to promote health as we structure our work organization and the workplace environment. Furthermore, we encourage employees to acquire skills that are conducive to health, for example through stress management or ergonomic training in the workplace. In Singapore, health ambassadors offer a group workout in the form of weekly power-up sessions. Employees also have the opportunity to be active during breaks; they might play tennis or practice yoga, for instance.

Recognition for excellent preventive health care

The German union for the mining, chemical and energy industries (IG Bergbau, Chemie, Energie) has awarded its health prize to Heraeus Comvance in recognition of the company's outstanding achievements in promoting the health of employees at the Bitterfeld site. Among other things, the jury was impressed by the company's exemplary work in the field of company health management and its Health working group, which is in charge of the site's preventive measures. Other important factors in the decision to award this prize to Heraeus Comvance were the company's establishment of sheltered workplaces for employees with physical limitations and its collaboration with a day-care center.





LOCATIONS AND FOUNDATIONS

Civic engagement



LOCATIONS AND FOUNDATIONS

A broad-based commitment to society

Civic engagement is an integral part of Heraeus's self-concept and corporate culture. As an employer, business partner and neighbor, we cultivate good relationships with our surroundings and help to create value in the region.

In keeping with the principle of “thinking globally, acting locally,” our sites are also involved in charitable causes that address local social and environmental challenges. Suggestions for engagement often come directly from our employees, many of whom are active volunteers. Their volunteer work is frequently closely aligned with our business activities.

Civic engagement in the Heraeus employment contract

“Heraeus welcomes and supports employees who volunteer in their free time, thereby helping to shape and improve the community. Such efforts are also in the interest of the company, which assumes social responsibility in a variety of ways as an organization and through its employees.”

Working for the common good at every location

The Heraeus locations are responsible for their own civic engagement and tailor it to meet local needs. We present positive examples in our company's media and honor the initiators. The following projects are examples of our commitment:

Testing the car of the future – and being part of the process

Seven hydrogen-powered delivery vehicles have been in operation in Hanau since 2017 as part of a groundbreaking pilot project. Heraeus is a partner in this process, along with Umicore, Evonik, the Fraunhofer project group IWKS, the Chamber of Industry and Commerce and the Hanau public utility company. One of these vehicles is traveling from one part of the Heraeus plant in Hanau to another, gaining practical experience in the use of hydrogen-powered vehicles across sites. Heraeus innovations and technologies are playing a role in the development of the fuel cell as a drive technology for the future. Here the focus is on the heart of the fuel cell: the catalyst. The aim is to improve the performance, lifespan and quality of these core components – thereby contributing to environmentally friendly mobility. The emissions produced by hydrogen-powered vehicles are merely a few drops of water on the asphalt.



Don't forget the older generation

Since 2017, Heraeus employees in Shanghai have been looking after older people on a regular basis as part of the 1+1+1 project. Currently, 15 volunteers are spending some of their free time reaching out to

three families. Once a month they visit these seniors, keep them company and help in their everyday challenges. One family was finding it difficult to lift their disabled son out of bed. The Heraeus volunteers, who were visiting the family, helped them by obtaining the equipment they needed. On traditional Chinese holidays such as the Spring Festival and the Mid-Autumn Festival, the volunteers celebrate with the seniors, making them feel less lonely.

Fundraising for employees in Puerto Rico

When Hurricane Maria swept across the Caribbean in September 2017, with wind gusts of up to 280 kilometers per hour, the island state of Puerto Rico was particularly hard-hit. Large areas were flooded, much of the island's infrastructure was destroyed, and numerous houses were in ruins. Many Heraeus employees in Puerto Rico were affected, too. The Heraeus Board of Management provided 100,000 euros in emergency aid – and that amount was doubled by donations from throughout the company. Heraeus subsidiaries all over the world got involved, making direct donations and participating in creative campaigns, such as a flip cup tournament and a chili benefit.

Fundraising for HMC employees in
PUERTO RICO

Please donate to help rebuild.

LOCATIONS AND FOUNDATIONS

Going the extra mile for a good cause

At Heraeus Electro-Nite in Houthalen (Belgium), sports competitions are linked to support for charitable organizations. In 2018, seven intrepid employees took part in an event called Climbing for Life, which involved riding bicycles through the Vosges Mountains. They were sponsored by other employees, and Heraeus doubled their contributions. The money was donated to an organization that fights diabetes.



Three other employees set off on Belgium's Dodentocht ("march of the dead"), a 100-kilometer hike that had to be completed within 24 hours. Once again, employees in Houthalen sponsored their colleagues. The donations went to a variety of charitable organizations whose causes include fighting cancer.

Collaborating with a workshop for the blind in Leverkusen

When selecting suppliers, Heraeus also considers opportunities to collaborate with severely disabled people. Heraeus Epurio in Leverkusen, for instance, has been regularly ordering goods from a workshop for the blind for several years. These products are used to keep the company's premises clean. Heraeus Epurio purchases as much as several thousand euros in products annually from the workshop, including brooms, whisk brushes, cloths for cleaning and other equipment, depending on the needs at the time.

LOCATIONS AND FOUNDATIONS

Heraeus foundations help to improve education and promote social cohesion

In launching its first foundation in 1897, the Heraeus family laid the cornerstone for broad-based civic engagement. Descendants of company founder Wilhelm Carl Heraeus have continued this tradition by establishing additional foundations, each with a unique focus, which complement one another. Every year a portion of the company's profits flows into the foundations, which are also Heraeus shareholders.



The **Kathinka Platzhoff Foundation** is devoted to providing systematic support for children and young people and their education, and to offering active support to seniors. The Foundation's Family Academy organizes workshops designed to foster understanding between parents and children and to support seniors, thereby strengthening the family. The foundation also includes a senior living facility, a mobile nursing service, a children's daycare center and a family center.

➤ www.kp-stiftung.de



The **Heraeus Education Foundation** focuses on providing continuing education for educators, with special emphasis on further training for teachers and administrators. In keeping with its motto "Making connections to improve schools," the foundation reaches approximately 2,000 educators every year with its seminars on personality development and school management. Its goal is to prepare teachers for the challenges of teaching.

➤ www.heraeus-bildungsstiftung.de



The **Wilhelm and Else Heraeus Foundation** promotes research and training in the natural sciences, and particularly physics. It facilitates the sharing of scientific ideas, organizes international symposiums and seminars, supports talented students and is helping to improve how the natural sciences are taught in schools. The foundation's work is recognized all over the world.

➤ www.we-heraeus-stiftung.de



FACTS AND FIGURES



FACTS AND FIGURES

Key figures

Employees	2016	2017	2018
Total	13,248	14,098	14,903

Employees by region (in percent)	2016	2017	2018
Germany	37	37	38
Asia	32	30	28
America	18	18	18
Europe excluding Germany	12	14	15
Africa/Australia	1	1	1

Occupational health and safety	2016	2017	2018
Number of workplace accidents (LTI)	-	165	109
Number of fatal workplace accidents	0	0	0

EHS Management	2016	2017	2018
Percentage of production sites with EHS management system based on ISO 14001	45	45	45
Percentage of production sites with EHS management system based on ISO 45001	-	-	9

Energy consumption in megawatt hours [MWh]	2016	2017	2018
Electricity			
Electricity	235,806	259,889	290,801
Gaseous fossil fuels			
Natural gas	159,304 *	112,109	114,134
Propane	-	8,114	12,184
Hydrogen	-	78,391	77,923
Steam	-	3,702	5,671
Liquid fossil fuels			
Diesel	-	660	639
Other energy			
District heating	-	18,438	17,961
Total energy consumption **	395,110	481,303	519,312

Waste in tons [t]	2016	2017	2018
Nonhazardous waste from production	9,738	10,182	11,630
Hazardous waste from production	2,641	6,829	5,944
Nonhazardous construction and demolition waste	-	3,277	9,387
Hazardous construction and demolition waste	-	8	0.2

Air emissions in tons [t]	2016	2017	2018
Nitrogen oxide emissions (NO_x) from production	844.5	845.3	863.0
Sulfur oxide emissions (SO_x) from production	3.8	1.8	7.0
VOC emissions from production	44.6*	44.5	45.9

The numbers in the table at right (energy consumption, waste, air emissions) are captured from 14 production locations and apply within a limited framework due to data availability. Data collection is being further systematized in order to report on key figures and indicators company-wide in the future. The numbers for the fields marked "-" were not included in the 2016 Sustainability Report. They are being reported for the first time in the current reporting cycle.* As part of the ongoing development of our EHS reporting system, the 2016 reported values for natural gas and VOCs were retroactively corrected.**We are continuing to develop our EHS reporting system. The expanded scope of reporting for the energy consumption data results in the rise in the reported values along the time axis.

Index

I. Responsibility Management

Specific description	Reference/information
Name of the organization	Heraeus Holding GmbH
Company profile	p. 6
Headquarters	Heraeusstrasse 12–14, 63450 Hanau, Germany
Business Groups and operational facilities	↘ Heraeus Online Portrait
Ownership structure and legal form	Family-owned company
Business groups and markets served	p. 7
Employees and their regional distribution	p. 6
Supply chain	↘ Suppliers and partners
Important changes during the reporting period with regard to size, structure and ownership structure of the organization or its supply chain	No significant changes during the reporting year
Attention to the precautionary principle	p. 30
Obligations to outside initiatives; memberships in associations	p. 15, p. 33

Specific description	Reference/information
Statement by the top decision-maker	p. 3
Risk management	p. 15
Values, principles as well as standards and norms	↘ Sustainability guiding principles
Compliance management, training and reporting process	p. 14
Structure and composition of corporate management	↘ Corporate Boards
Responsibilities within the company for sustainability issues	p. 14
Approaches for involving stakeholders	p. 15
Process for defining report content and limits	p. 4
Report details	p. 50

Index

II. Products and solutions

Specific description	Reference/information
Key product and services categories	p. 18, p. 19
Quality management	p. 17
Customer satisfaction survey	p. 17
Innovation management and approaches	p. 20

III. Procurement and supply chain

Specific description	Reference/information
Management of suppliers	p. 23
Risk analysis and identified risks	p. 24
Requirements for suppliers in regard to the procurement and trading of precious metals	p. 24

IV. Environment and occupational safety

Specific description	Reference/information
EHS Management	p. 30
Energy and resource efficiency	p. 31
Resource cycle management with focus on precious metals recycling	p. 26, p. 31
Chemicals safety	p. 32
Workplace and equipment safety	p. 33

V. Employees and corporate culture

Specific description	Reference/information
Human Resources Management	p. 36
Leadership culture, succession planning and talent management	p. 37
Training and continuing education	p. 39
Company benefits	p. 39
Work/life balance promoted	p. 39
Health promotion	p. 40

Index

VI. Locations and foundations

Specific description	Reference/information
Principles for civic engagement	p. 42
Engagement at Heraeus locations	p. 42
Engagement of the foundations	p. 44

FACTS AND FIGURES

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