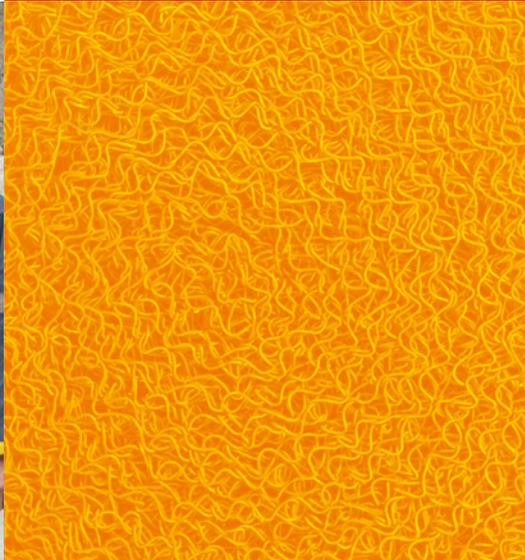




Sustainability
Report
2016



TOP 10

FAMILY-OWNED COMPANY

Heraeus receives recognition from Foundation for Family Businesses.

20%

increase in energy storage density of batteries with the innovative carbon powder Porocarb.

450,000 SHEETS OF PAPER

were saved during 2016 alone in German locations using the Heraeus cloud-printing system.

Heraeus catalysts reduce nitrous oxide emissions during production of fertilizers and nitric acid by as much as

95%

The number of printers dropped by

75%

ABOUT 200 EMPLOYEES

will be involved in research and development at the new Heraeus Innovation Center in Hanau.

20%

of sunlight converted to electrical energy with solar cells using Heraeus silver paste—the current world record.

Contents

Foreword	2
About this report	3
Heraeus portrait	5
Value creation at Heraeus	6
Responsibility Management	8
Sustainability Roadmap	12
Products and solutions	14
Procurement and supply chain	20
Precious metals cycle	24
Environment and occupational safety	26
Employees and corporate culture	30
Locations and foundations	34
Facts and figures	36
Publication credits	40

Ladies and Gentlemen,

Heraeus is a successful family-owned industrial company, valued and respected for its lasting economic success and corporate culture. In 2016, the Foundation for Family Businesses chose Heraeus as one of the Top 10 Family Businesses in Germany. In each of the GBUs, Heraeus strives to develop new market potential through the company's expertise, innovative ability and constant striving for improvement, and to contribute to a better, more sustainable world with its products and solutions.



Our fundamental maxim is to ensure that the Heraeus Group endures and thrives as a family-owned company. This basic principle requires us to prioritize long-term economic success over short-term maximization of profits. As a global enterprise with the fifth generation of the Heraeus family at the helm and a history extending back for eleven generations, we have always treated long-term planning and the associated responsible management of raw materials, energy and our workforce as essential elements of our business activities.

Our economic success largely stems from business activities that pursue the goals of sustainability. The industrial processing and recycling of precious metals, such as those in electronic products or catalysts, is

a core competence of Heraeus. We thereby make a significant contribution to the preservation of global precious metal resources. The medical market has also long been one of our areas of activity. With innovative solutions for medical technology and products that are used in orthopedics, vascular surgery, neurology and oncology, we have made a commitment to a healthy society. We intend for this to remain a globally important field of activity in the future as well. In the area of environmental technologies, we offer a wide range of products and solutions. Our silver conductive pastes, which are used in photovoltaic modules, are currently the most efficient in the world. But Heraeus products are also successfully used to clean both air and water and to boost the efficiency of batteries. These achievements derive from our high level of technological expertise, our innovative strength and our clear focus on the customer.

With this inaugural Sustainability Report from Heraeus, we aim to give you an overview of the fields in which the Heraeus Group has already committed to sustainable conduct. Our global positioning and our broad business portfolio make it necessary to define globally valid rules and goals that further develop our sustainable action in a defined framework. The Sustainability Roadmap serves as our guide on the path from varying regional activities to uniform company-wide action, which of course will continue to take into account a variety of national standards.

We have already set forth our firm commitment to sustainable action in the Heraeus Corporate Guiding Principles. This statement describes the values and principles of the Heraeus Group and applies to all our employees worldwide. The Sustainability Report documents our activities in a structured form and contains the goals that we have set for ourselves in regard to sustainability for the future. I cordially invite you to read them.

Jan Rinnert

Chairman

The Heraeus Holding Board of Management

About this report

With the first Sustainability Report, Heraeus provides new impetus for the dialogue about responsible business practices. The report is meant for our employees, business partners, all other stakeholders and the interested public.

We intend to consistently pursue the strategic goals associated with our Sustainability Principles in all areas of the company and at all Heraeus locations worldwide. A crucial component for reaching our goals is to make our sustainability performance measurable, transparent and readily understandable. Therefore, in this first Heraeus CSR we describe the status of implementation and the commitments already made at our locations.

Reporting period and scope

This 2016 CSR covers the period from January 1, 2016 to December 31, 2016. The report also provides information about important activities that took place either before or after that period, up until the editorial deadline in April 2017. The indicators across a broad international reporting framework are based on this reporting year. We intend to monitor and compare them in a series of follow-up reports. 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 nine operational units (Global Business Units) and more than 100 locations 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. Heraeus Holding GmbH includes additional subsidiaries that are currently preparing the appropriate data basis; these are to be successively integrated into the reporting process.

In the future, Heraeus will publish a CSR every two years. The next comprehensive report is expected to appear during the year 2019 and cover the period from 2017 to the end of 2018. Heraeus will publish an update of the key figures in 2018.

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 final chapter summarizes all the important indicators.

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.

Contact for questions and comments on the Heraeus Sustainability Report:

Bernhard Reckmann

Heraeus Holding
Responsibility management
bernhard.reckmann@heraeus.com

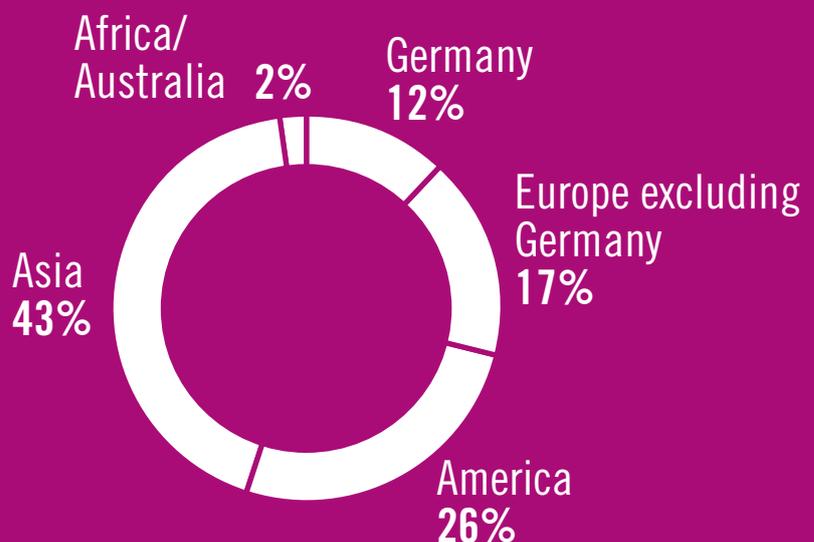
6,000+
PATENTS AND
PATENT APPLICATIONS

12,369
EMPLOYEES

€2 BILLION
PRODUCT REVENUES EXCL. PRECIOUS METALS

PRODUCT REVENUES EXCL. PRECIOUS METALS

by region



Heraeus – Global. Successful.

Heraeus, the technology group headquartered in Hanau, Germany, was founded in 1851 and today is a globally leading, family-owned company. With technical expertise, a focus on innovation, operational excellence and entrepreneurial leadership, we constantly strive to improve our business performance.

We create high-quality solutions for our clients and strengthen their competitiveness in the long term by combining material and technological expertise. Our ideas are focused on themes such as the environment, energy, health, mobility, and industrial applications. Our portfolio includes everything from components to

coordinated material systems, and our products are used in a wide variety of industries, including the steel, electronics, chemical, automotive, and telecommunications industries.

In the 2016 fiscal year, Heraeus earned revenues—excluding precious metals—of €2.0 billion and total revenues of €21.5 billion. With around 12,400 employees worldwide at more than 100 subsidiaries in 40 countries, Heraeus holds a leading position in its global markets. In 2016, Heraeus was named one of the Top 10 Family Businesses in Germany by the Foundation for Family Businesses.



Responsibility – The foundation of everything we do

The sustained positive business development of the Heraeus Group and its independence as a family-owned company are the determining factors for all our entrepreneurial decisions. Our clear commitment to sustainability also plays an important role.

In our pursuit of sustainable conduct, the Heraeus employees are our most important resource. As Open Minds, they contribute significantly to the company's success.

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



Products and solutions



Environment and occupational safety



Locations and foundations



Procurement and supply chain

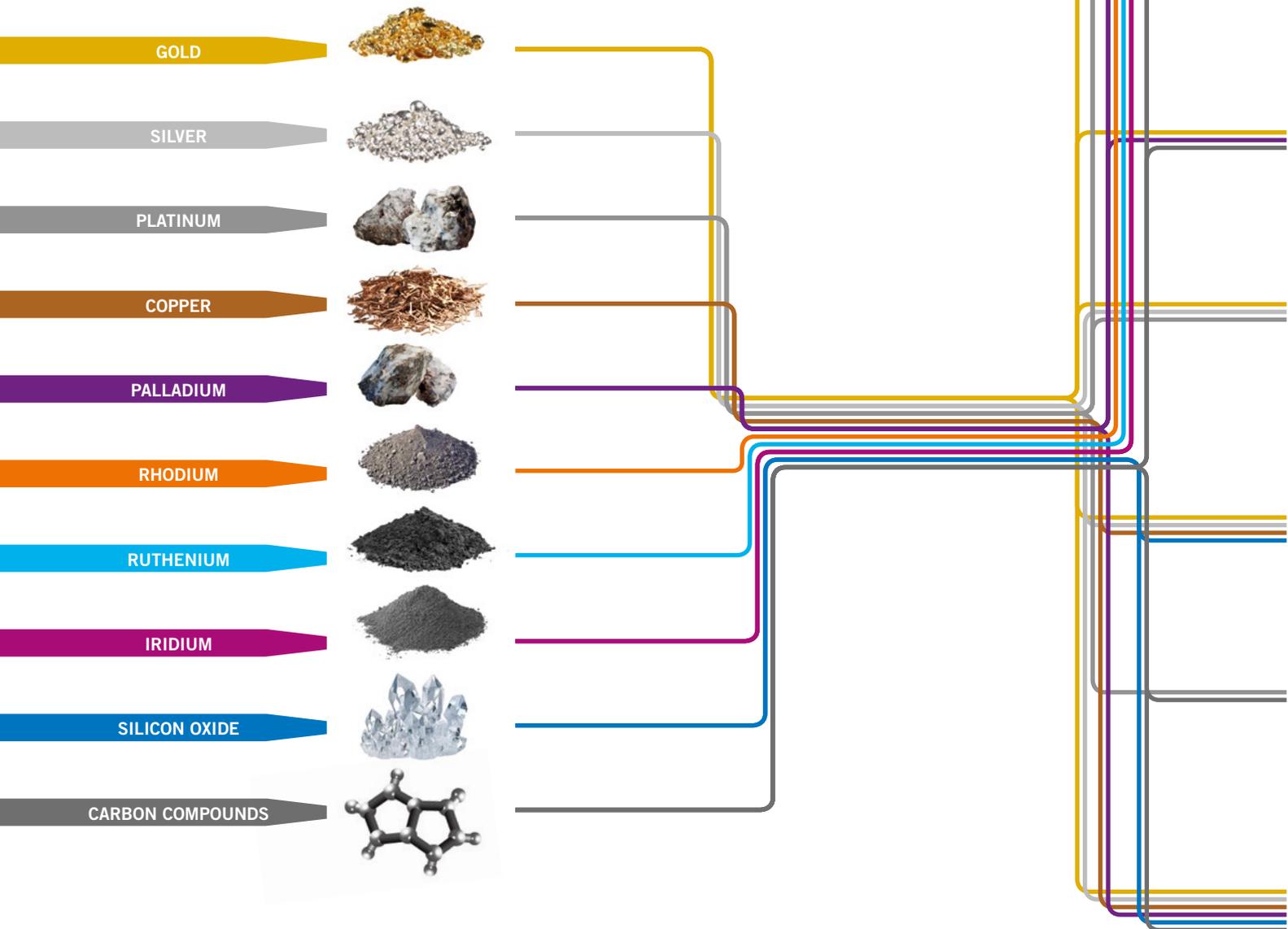


Employees and corporate culture

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 use 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.

For detailed information about the raw materials we use, our products and specific fields of application, along with the relevant contacts, go to www.heraeus.com.





MEDICAL TECHNOLOGY AND PHARMACEUTICAL PRODUCTS

Antibiotic bone cement
 CerMet implants
 Pharmaceutical ingredients
 Components for medical applications



CATALYSTS

Catalytic converters
 Catalytic gauzes
 Chemical catalysts



SPECIALTY LIGHT SOURCES

Analytical lamps for measuring gases, liquids and solids
 Specialty lamps from infrared to ultraviolet



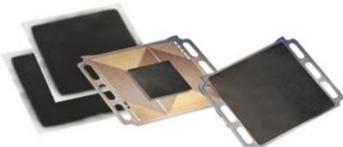
SENSORS

Sensors for the steel industry
 Temperature sensors



POWER ELECTRONICS

Metal ceramic substrates
 Materials for assembly and joining technology
 Bonding wires



PEM (POLYMER ELECTROLYTE MEMBRANES)

Catalyst Coated Membranes (CCM)



CONDUCTIVE MATERIALS

Silver pastes for silicon solar cells
 Optical fibers made of quartz glass
 Conductive polymers for displays and condensers
 Porocarb for lithium batteries
 Bonding wires



HEALTH

Preventing infections in endoprosthetics
 Life-prolonging implants
 Contributing to curing cancer patients
 Minimally invasive surgery



COMMUNICATIONS

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



ENVIRONMENT

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



MOBILITY

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



ELECTRONICS

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



INDUSTRIAL APPLICATIONS

Accurate, efficient processes
 Process simplification
 Energy savings



ENERGY

Greater efficiency and accurate methods
 Energy savings



Christine Liedtke is a project assistant in the Responsibility Office. Her duties include organizing the project plan for the team.

“Environmental protection and occupational health and safety, sustainability, prevention of corruption—I encounter a wide variety of topics in my daily work.”

Responsibility Management Conducting business responsibly at Heraeus

As we strive for sustainable development and economic success, we deal responsibly with financial and natural resources and our social environment, as well as with our business partners and our employees. In our view, the most important standards for responsible behavior are compliance with laws at the national and international levels and a focus on the social and economic needs and interests of our stakeholders throughout the value creation chain. We take these obligations seriously at Heraeus and have codified in our Corporate Guiding Principles the values regarding responsibility that determine our daily behavior. This goal of sustain-

able economic development applies for all areas of the company at all Heraeus locations worldwide.

Through excellence, leadership and our innovative capacity, we pursue long-term economic success. We hold leading positions in our global markets, and we develop products for a sustainable and better world. To maintain the successful alignment of our business activities, we focus on markets with a long-term orientation. At the same time, we cultivate trust-based relationships with our employees and the society around us. During the 2016 reporting year, we anchored our

approach with Sustainability Principles that apply throughout the company. These were developed in an interdisciplinary process by senior managers from communications, purchasing, compliance/legal, environmental management, occupational safety and human resources, each of whom developed positions in their own action areas. These will be further explained in the Sustainability Roadmap and individual chapters.

Embedding sustainability and responsibility within the company

We have integrated the responsibility for sustainable action into our organizational structure. At Heraeus, this is primarily addressed by the operational units, supported by governance bodies and the Group functions for the environment, health and safety, personnel, purchasing and procurement, as well as site operations.

Responsibility Management as a cross-sectional task.

Heraeus determines strategic decisions and goals at the Group level in the Group Sustainability Board, linking them with the company’s economic interests. In addition to the Group Sustainability Board, other governance bodies at Heraeus ensure that the various stakeholders work together in establishing efficient processes and structures. Located at the highest level is Group Responsibility Committee, which includes representation from the Heraeus Holding GmbH Board

of Management and is where specific decisions about financial and personnel resources are made.

On July 1, 2016, the company established a Responsibility Office under the umbrella of Legal & Responsibility. The office supports the operational establishment and expansion of reliable and efficient processes and structures for exercising corporate responsibility worldwide. The Responsibility Office works to further improve cooperation in the action areas between the operational units and the Group functions and to achieve synergy effects.

At the operational level, the management systems constitute the framework for defining operational objectives, selecting measures and reviewing results.

The Heraeus Responsibility Management office performs coordinating, supporting and standardizing tasks in order to anchor sustainability and responsibility throughout the company and across all departments. It does so through an integrated approach, assigning various action areas to existing management systems.

Focusing on compliance.

Compliance Management is primarily oriented toward meeting statutory obligations and following voluntary guidelines. Among its most important responsibilities is the task of raising awareness among employees and

Functions of Heraeus Responsibility Management



giving them clear instructions for their daily work. The Code of Conduct introduced in 2007 is the framework for Heraeus business activities worldwide and contributes to securing the company's long-term success. The Code of Conduct contains binding regulations that every employee must observe. It is spelled out in seven Compliance Guidelines that cover the selection of suppliers and prohibit bribery, money laundering and cartel violations.

We actively promote the detection of violations of our Compliance Guidelines. Any employee can express concerns to the Heraeus Compliance Officer, who accepts all comments. In addition, we have set up an external whistleblower hotline for reporting possible compliance violations to an ombudsman. Rule violations are reported to the Compliance Officer in the annual Compliance Reporting. Serious violations can be reported on an ad hoc basis to the Heraeus Compliance Officer and the Board of Management.

In addition, we conduct regular training sessions to ensure that our employees are informed about requirements within the company. The Heraeus Compliance Officer, the Compliance Officers and managers at the operational level, and the subsidiaries abroad share responsibility for implementing a training concept that applies worldwide. This ensures that all relevant employees are informed about new regulations and that they know and understand the requirements of the Heraeus Compliance System.

To ensure that compliance is firmly anchored even when business units are bought and sold, a block of questions regarding potential compliance risks was inserted into the requirements catalog for due diligence. To ensure that the compliance rules are followed, all Heraeus companies must fill out annual Compliance Questionnaires. In addition, the Heraeus Compliance Officer and Corporate Auditing work together to conduct Compliance Audits.

Partnership and dialogue with our stakeholders

In order to identify the primary challenges for our company, we maintain a continuous and cooperative dialogue with our key stakeholders. Chief among these are our customers, our employees and shareholders, suppliers and experts from the scientific community, associations and societal interest groups. In addition,

we conduct our own media and field analyses to identify the most important demands placed on Heraeus by the public and policymakers. These analyses and the results of direct discussions help us further develop our corporate strategy and Responsibility Management. Using various formats, we learn to better understand the needs and expectations of our stakeholders. Our goal is to maintain and strengthen their trust in Heraeus.

Our customers' satisfaction determines the competitiveness and the economic success of our company.

This dialogue focuses on industrial companies from various branches. As part of our quality management, Heraeus has conducted customer satisfaction surveys at regular intervals since 2003.

The discussion is not limited to customer service in the traditional sense; it also concerns customer-specific solutions for which we include

our partners in the product development process.

Furthermore, we prepare information as needed for end customers; for example, Heraeus Medical offers helpful information online with its patient service, including "Useful information about joint replacements."

**9 CUSTOMER
SATISFACTION
SURVEYS
SINCE 2003**

Our employees play a key role for value creation at Heraeus.

We maintain a dialogue with them in an atmosphere of trust and keep them informed about all important decisions, such as operational changes or major investment projects. Our communication channels include regular staff meetings, annual development appraisals, our intranet, and local events such as the monthly foremen's breakfast in Germany. We also publish an employee magazine every two months, which includes reader comments.

Conversations with our shareholders and financial partners focus on the company's development.

Our shareholders include descendants of the founding family and certain managing directors, as well as nonprofit foundations established by descendants of the founding family. They are regularly informed about developments at Heraeus via the shareholders meeting,

the shareholders committee and the shareholders circular. Regular events are also held to maintain family cohesion. We keep our financial partners informed mainly through our annual reports, at the annual meeting and in various individual discussions.

We and our suppliers make a joint commitment to quality. As a result, we generally maintain long-term and stable business relationships with our suppliers, working with them to ensure the quality of our products. We actively involve them in our commitment to comply with requirements in the areas of chemical safety. To that end, we work with them to develop possible solutions, especially where precious metals are involved.

We are active in associations and exchange information with interest groups. In our involvement with associations and interest groups, we contribute our expertise, exchange professional knowledge and strive to have a positive effect on the developing environment in the individual industries. We maintain a lively exchange with experts from the scientific community, associations and social stakeholders. In Heraeus business segments that involve precious metals, nongovernmental organizations (NGOs) in particular represent a critical public whose primary focus is on the sourcing of critical raw materials. We take their advice and comments seriously and ensure that we respond to all requests for information.

We respond to inquiries from the media. The public has a legitimate interest in our corporate development. With roundtable discussions, background interviews, regular meetings and regular media releases, we maintain an active dialogue with journalists and media representatives, and we respond to every inquiry.

Focus on key sustainability

We are aware of our influence and our responsibilities to human beings and the environment. This is the focus of our many years of involvement in these areas of activity. For risk evaluation, Heraeus relies on a Group-wide risk management system designed to identify legal, operational or financial risks at the earliest possible stage. This gives us a standardized way to identify, evaluate, manage and monitor risks and opportunities, thereby ensuring the long-term survival of our company. Another important component is the definition and pursuit of constructive measures for effectively managing risks.

Findings from Risk Management, the annual audit, and internal auditing and Compliance Management are included.

In future, the company will further develop its risk management system so that it is no longer focused solely on risks that threaten its existence. In future, a group of experts will discuss significant risks that Heraeus

Also, in accordance with established reporting standards, Heraeus will develop a systematic assessment of the effects of our business activities on the environment and society. We will continue our regular dialogue with our stakeholders.

can influence, and will work with the operational units to develop strategies for effective risk prevention.

Sustainability Roadmap

To steadily improve our achievements in the area of sustainability and provide transparency about our progress, we are pursuing the development of a Group-wide sustainability program. With our Sustainability Roadmap, Heraeus is defining strategic goals at the Group level and working with the operational units to flesh out and further develop these goals by the end of 2017.

Sustainability Roadmap

Strategic goals	Status of implementation/planning
Responsibility Management	
We continually increase the controllability of Responsibility Management and its effect on integration and coordination.	Ongoing management through Group-wide policies as well as standardized systems and methods. Operationalizing the strategic goals of the sustainability program.
We promote the involvement of our employees with the Heraeus Group's social responsibility.	Expanding and regularly conducting training sessions, workshops and targeted communication measures.
We analyze the risks and opportunities of our business activities and identify challenges.	Expansion of systematic risk analysis, taking sustainability aspects into account.
We maintain open dialogue with our stakeholders and measure ourselves against their feedback.	Continuation of dialogue in various formats. Systematization of stakeholder surveys on sustainability aspects.
Products and solutions	
We take responsibility for the safety, quality and service life of our products and strive to attain the highest level of customer satisfaction.	Expansion of Group-wide quality management. Regular surveys of customer satisfaction.
We measure our products by the added value they create for our customers and for society.	We monitor and continually assess effectiveness data and potential for improvement.
We invest in our innovative capacity and maintain our focus on current and future challenges.	Systematic innovation management, taking indicators into account. Opening an innovation center to promote interdisciplinary research and development.
Procurement and supply chain	
We conduct inspections to ensure that requirements are met in areas with increased risk.	Compliance check of all precious metals suppliers; on-site inspection of mines; tracking movement of materials until smelting.
We set standards for our suppliers in regard to fair working conditions, occupational health and safety, ecological sustainability and business integrity.	Requirements integrated into terms and conditions of purchase. Group-wide guidelines for the selection and inspection of suppliers. Further development of Code of Conduct for all suppliers.
We systematically assess risks in our supply chains worldwide.	Expansion of systematic risk analysis, based on international standards and with consideration of sources.

Strategic goals	Status of implementation/planning
Environment and occupational safety	
<p>We strive to continually improve our environmental balance by increasing our energy and resource efficiency and avoiding or minimizing environmentally harmful effects.</p>	<p>Worldwide standardization of processes based on ISO 14001.</p> <p>Group-wide systematic review of measures and indicators for environmental protection at the operational level, as well as more extensive exchange of exemplary measures via best practice teams.</p>
<p>We bear responsibility for safety at our locations for the protection of our employees and the surrounding community.</p>	<p>Worldwide standardization of processes based on OHSAS 18001.</p> <p>Group-wide systematic review of measures and indicators for environmental protection at the operational level, as well as more extensive exchange of exemplary measures via best practice teams.</p>
Employees and corporate culture	
<p>We establish a leadership culture that promotes excellence, responsibility, and the involvement of our employees.</p>	<p>Leadership Model, training sessions and succession planning.</p>
<p>We invest in the professional education and training of our employees.</p>	<p>Global trainee program.</p> <p>Dual studies program in Germany.</p> <p>Review of an expansion of study options.</p>
<p>We promote work/life balance and we support our employees during difficult situations in their private lives.</p>	<p>Options appropriate to needs.</p> <p>Information about care for children and other dependents.</p>
<p>We promote the health of our employees.</p>	<p>Preventive care, consultation and health-promoting options.</p>
Locations and foundations	
<p>We want to be a good member of the community at each of our locations.</p>	<p>Contribution to regional value creation as taxpayer and socially committed employer.</p>
<p>We encourage our employees to engage in volunteer activities to protect the environment and promote social cohesion in their communities.</p>	<p>Support clause in employment contract.</p> <p>Joint activities at our locations.</p> <p>Involvement of company-related foundations.</p>



Klaus-Karl Schmidt is a production manager in the Gauzes division at Heraeus. In the background, his colleague Markus Meier is flaming a platinum gauze. This step removes dirt and production residues before delivery to the customer.



“In the manufacturing fertilizer process, greenhouse gases are emitted. Heraeus offers special catalysts that reduce these gases by as much as 95 percent.”

Products and solutions Sustainability in our core business

In our Sustainability Guiding Principles, we define our sustainable products and solutions as one of the core Heraeus action areas and underscore the importance of our strong customer orientation. At the same time, in our Code of Conduct we set forth the highest standards for the quality and safety of our products across their entire life cycle.

In global markets, we focus on businesses in the areas of the environment, health care, electronics, communications, mobility, industrial applications and energy.

Here, we create high-quality solutions for our clients, making an important contribution to their value creation and strengthening their competitiveness.

In our core businesses, we concentrate on maintaining and expanding our technological leadership with innovative and groundbreaking solutions. Heraeus is committed to a high level of product responsibility and customer satisfaction, providing solutions that convincingly combine technological maturity and innovative potential with a long service life.

Focus on product quality and customer satisfaction

We rely on quality management standards and procedures to ensure product quality and customer satisfaction. In order to maintain product quality at an equally high level at all locations worldwide, we have defined quality management requirements based on the internationally recognized ISO Standard 9001.

At the Group level, the Group Quality Management Board provides advice on current quality management topics. Within this framework, procedures are examined and further developed. For example, this includes defining standard quality-related IT solutions as well as interfaces and central functions within the company.

Technological added value in the service of society

Our long-lasting products increase efficiency in many industrial applications. We offer high-tech solutions that make a significant contribution to climate protection and resource conservation, as well as to attaining a high standard of living.

Innovations to protect people and the environment

Heraeus offers a wide range of technological solutions for a clean environment and the protection of natural resources. For example, as a precious metals specialist the company has broad expertise in the recycling of valuable materials that otherwise must be obtained by energy-intensive and environmentally damaging processes. Another focus is the use of specialty lighting sources from Heraeus to fight air and water pollution. For example, the hazardous volatile organic carbon (VOC) emissions of painting work are converted in a photochemical exhaust purification process via oxidation into carbon dioxide and water in a relatively cost- and energy-efficient manner.

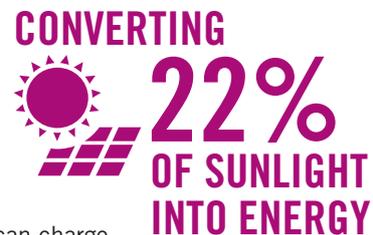
Likewise, treating and disinfecting water with UV radiation is an energy-efficient method that uses no environmentally hazardous chemical additives. Special UV lamps destroy microorganisms such as bacteria, viruses, and parasites while helping to reduce the level of harmful chemicals. For example, this method is used to purify the ballast water of cargo ships—an important contribution to the protection of marine ecosystems. Airborne bacteria and microorganisms that are found

especially in doctor’s offices, hospitals and airports can also be reliably reduced using UV radiation.

Exhaust and emissions from transportation and industry contribute to air pollution and global climate change. Heraeus offers catalyst systems that can reduce emissions of nitrous oxide—a potent greenhouse gas—from fertilizer production, for example, by as much as 95 percent. This is an effective mitigation approach that we also offer for existing facilities worldwide via a customized full service retrofit without a high investment cost. Heraeus products also provide intelligent approaches to reducing transportation-related particulate and CO₂ emissions, for example in sensors—a key technology in the automotive industry. Heraeus provides millions of platinum sensors every year to ensure compliance with emissions limits, reduce consumption and improve the operational safety of vehicles.

Limiting global warming to between 1.5 and 2 degrees Celsius will be impossible without the near-total decarbonization of energy production. Addressing this goal, Heraeus is advancing technological development in the field of renewable energies. Further reducing costs and increasing efficiency are key success factors in this effort. Silver-based electroplating pastes from Heraeus have excellent conductivity, helping to ensure that the next generation of solar cells can convert as much as 22 percent of sunlight into energy, up from 18 percent now. Heraeus is also working to develop organic solar cells and is testing the use of conductive polymers. Organic solar cells can be produced in a printing process that is relatively economical and environmentally friendly. There is

the prospect of introducing new fields of application, such as ways to supply energy to mobile electronics, clothing items that can charge electronic devices, or solar panels that roll up. In addition, we are bundling our areas of expertise to generate intelligent, networked approaches that make optimal use of renewable energies to suit local conditions and possibilities.



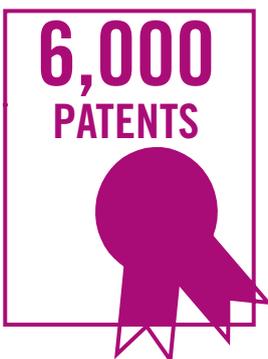
High-tech solutions for health and quality of life

Heraeus is continuously researching future-oriented solutions that contribute to medical progress. Our company ranks among the most important manufacturers of orthopedic bone cements. We also have a broad range of medical technology products, from components for cardiovascular medical devices to minimally invasive surgery, and we deliver platinum-based chemicals for use in cancer therapy.

Biomaterials from Heraeus are used in orthopedics and trauma surgery to increase patients' quality of life, because they improve the attachment of implants and prevent subsequent infections. These are the most common causes for the need to replace the joint implant (revision). One study on the use of antibiotic-laden bone cement from Heraeus when treating femoral neck fractures confirms the advantages, particularly for older patients with comorbid conditions: There were 66 percent fewer infections. Heraeus is participating in cooperative studies aimed at maintaining natural joint functionality and accelerating the healing of traumatic injuries to the musculoskeletal system.

In the field of miniaturization of medical technology, interactive microimplants with CerMet technology from Heraeus open up new possibilities for restoring function in the heart, brain, eye or ear. The technology uses innovative biocompatible material systems made of ceramic and metal. The CerMet technology makes it possible to significantly reduce the electric interface of

implants in the body while offering a high level of integration of the electronics used. Above all, this could yield improvements in minimally invasive treatment with interactive microimplants in nerve and brain stimulation, for example to improve vision or hearing or to alleviate the effects of Parkinson's disease.



66% FEWER INFECTIONS
WHEN TREATING FEMORAL NECK FRACTURES

Efficient solutions for industrial processes

Digitization and networking rank among the megatrends of modern society. With innovative solutions in the field of bonding and coating technologies, Heraeus is helping industrial customers make electronic components smaller, more long-lasting and more efficient. This is particularly useful in the automotive industry, where the number of electronic components is significantly rising as modern driver assistance systems proliferate and the electrification of vehicles continues.

Electromobility is one of the company's growth areas. In the Fuel Cell startup, we are working closely with automobile manufacturers to develop polymer electrolyte membranes with optimized catalysts for use in automotive fuel cells. We are also working intensively to improve the lifespan and performance of components, thereby contributing to a breakthrough for this innovative technology. In a parallel development, the

Heraeus Battery startup is preparing to launch an innovative functional carbon additive to improve the performance of lithium ion batteries, lead batteries and capacitors.

Heraeus is also the technology leader in the production of high-purity quartz glass, which is used as the starting material for fiber-optic cables in the telecommunications industry. Driven by changes in user behavior, with more and more people downloading high-resolution videos, and by the introduction of the future 5G mobile communications standard, demand for optical fibers has been rising for years.

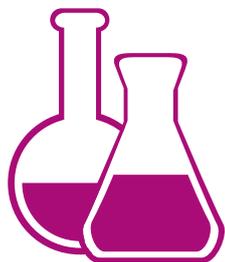
With our expertise in dealing with high-temperature processes as well as industrial precious processing, Heraeus is also a sought-after partner in the metal industry. The company is a recognized specialist in measurements for molten steel, iron and aluminum, and is constantly expanding its portfolio to include everything from high-performance sensors to complete measurement systems.

Promoting innovations through research and development

Important drivers for the healthy and organic growth of Heraeus include the identification of trends, the blossoming of new business ideas and the further development of our product portfolio. Therefore, we set high expectations for our innovation management as well as for interdisciplinary work on new technologies in cooperation with our customers.

We owe our success to a special culture of innovation, which is based on an open and learning organization at Heraeus and relies on networking with other companies and partners. This makes it possible to recognize good ideas early on, drive them forward and develop market-ready solutions. A crucial factor in this effort is the capacity for entrepreneurial thinking and acting, which we actively promote among our employees.

Our focus on innovation primarily follows the megatrends of our time, such as environmental and climate protection, digitization and the challenges of demographic change. This is where we see the greatest potential for the future and conduct research on key technologies for clean air, energy efficiency, conservation of resources and maintaining human health. Digitization, which penetrates every area of Heraeus, serves as a catalyst for innovations. To ensure the successful development of new products and methods, we also rely on a global patent strategy aimed at protecting intellectual property.



**€150
MILLION
R&D EXPENDITURES**

At Heraeus, activities addressing research and development (R&D) topics are bundled at the Group level. This is where we coordinate various cluster initiatives in which interdisciplinary development teams work. In addition, we have introduced a uniform and binding innovation process for the Group as a whole. Performing an important management function at the Group level is the Group Innovation Board, which evaluates the

innovation strategies and the performance of our Global Business Units.

Our concept for promoting innovation

We measure our success in this area based not only on our investments and patents, but also on the involvement of our employees.

Heraeus has established various ways to promote innovation. On one hand, we rely on the individual Global Business Units, 80 percent of which have their own R&D entities. On the other hand, we bundle Group-wide innovation capacities. One example is the planned Innovation and Communication Center at our headquarters in Hanau, Germany.

In addition, we promote the development of new business models using modern startup structures, and we recognize outstanding performance with our Heraeus Awards.

30 
**DEVELOPMENT CENTERS
WORLDWIDE**

Startups:

New business concepts spur innovations

Two projects exemplify the approach of developing successful companies from startups. Heraeus Fuel Cells now has two dozen fuel cell experts working on innovative components in its own laboratories and test centers. The focus is on new materials and solutions with optimized platinum loading and enhanced performance. Even in an early stage of development, we took our customers' needs into account and met their requirements for lower processing costs.

The Heraeus Battery startup turned its attention to the global demand for cleaner, less expensive and more sustainable energy, which will require a transformation of the entire battery industry. The developers are targeting cost reductions, greater storage capacity, and battery performance that could be used, for example, to extend the range of electric cars.

Heraeus Awards honor first-class achievement by developers

Since 2003, the company has recognized its brightest minds and most talented researchers each year with the Heraeus Innovation Awards. The jury can choose from a wide variety of new technologies and cooperative partnerships that will drive progress in medicine, telecommunications, mobility, and renewable energies.

They especially look for the combination of exceptional technological expertise with a clear vision of how the final product will actually be used.

In 2016, the Heraeus Awards jury presented two main prizes in the category of Innovation. The prize for Best Innovation went to a team from Heraeus Medical Components for developing a new medical product. The new guidewire for catheters is used in minimally invasive procedures, making it easier for surgeons to position therapeutic products in the desired position within the body. In the Best Cooperation category, a team from Heraeus Electronics took first place with new assembly and joining technology for silicon and silicon carbide power semiconductors. The innovative system is used, for example, in power electronics modules for the efficient transfer of energy in the field of electromobility.

MORE THAN

SUBMISSIONS
FOR THE 2016
HERAEUS AWARDS

Outlook

At Heraeus, innovations are crucial to our company's success. Therefore, we will continue to promote research and development as well as investing in new business ideas. We want to consistently further develop our existing products, but also move forward with new solutions that continually improve the benefits to customers and enable us to enter attractive markets. We focus on product developments that sustainably create a better world, particularly in the fields of medicine, environmental technology and mobility. We invest only in fields that demonstrate attractive growth prospects. The products and solutions described here ensure this growth. We have also embedded this future-oriented approach in our corporate guiding principles.

PRECIOUS METALS
 trading, recycling, industrial
 processing

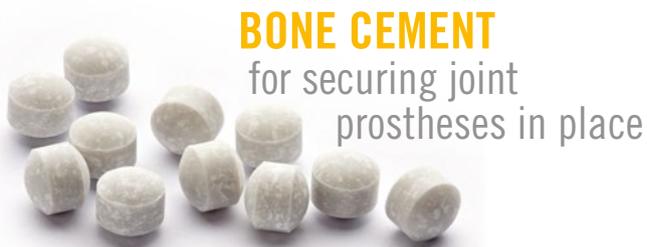


QUARTZ GLASS
 for the telecommunications
 and semiconductor industry



Successful products from Heraeus

Heraeus produces high-quality technology products for many industries



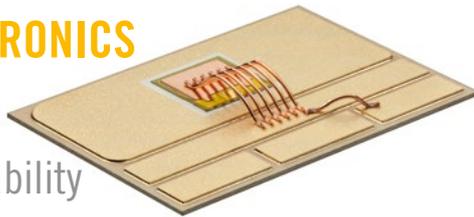
BONE CEMENT
for securing joint
prostheses in place



POROCARB
for improving battery
performance

POWER ELECTRONICS

for applications
that demand
the highest reliability



HIGH-TEMPERATURE SENSORS
for treating exhaust gas

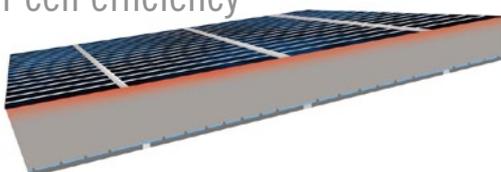
3D PRINTING

for additive
manufacturing
with metals



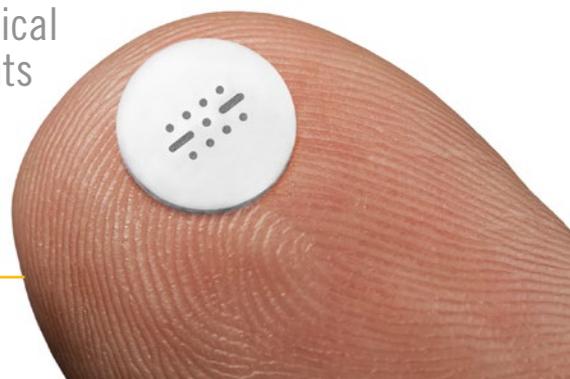
SILVER PASTES

world record holder in
solar cell efficiency



CERMET

for the miniaturization
of medical
implants





Dr. Jürgen Müller-Schäfer is, as head of precious metals security, responsible for auditing mines, such as here in the Philippines. He checks things out first-hand on site – including talking with the employees at the mine.



“Heraeus sources its precious metals exclusively from mines, which have been audited onsite to ensure that they comply with the Code of Conduct.”

Procurement and supply chain

Sustainable procurement and trade with raw materials

Our suppliers are important guarantors of Heraeus’ promise of quality and our products’ success. For that reason, we strive for long-term business relationships and actively involve suppliers in our strategy for sustainable action. Together, we aim to ensure that the raw materials we process are extracted in an ethical way.

As a technology company, Heraeus acquires raw materials, production materials, investment goods and services on national and international markets. These primarily include metals as raw materials and semi-finished goods, ceramics, catalyst supports, chemicals, machines, equipment, IT and services such as facility

management, maintenance and logistics. One key pillar in the Heraeus portfolio is precious metal processing and recycling, particularly platinum group metals. Because of their value and importance, our management approach focuses on precious metals procurement and trade.

In our Code of Conduct, we state that we require our suppliers to ensure safe and fair working conditions. Our general terms and conditions for purchasing accordingly obligate all suppliers to comply with legally binding regulations. Heraeus has the right to terminate contracts without prior notice if suppliers violate

these obligations. Our Supply Chain Policy spells out the requirements for our business partners to provide evidence of business integrity in the areas of precious metals trading and recycling. To ensure compliance, our company-wide Sustainable Sourcing guideline defines procedural instructions for selecting and regularly evaluating the suppliers. In so doing, Heraeus commits to ensuring the ethical origins of its precious metals through seamless transparency and proving it with an external audit.

Extract from Heraeus' general terms and conditions of purchase

The supplier hereby commits to Heraeus to comply with all legally binding rules and regulations, in particular with all applicable laws for the protection of fair competition, all export and import prohibitions in force, all applicable customs and tax regulations as well as all applicable legal regulations for the protection of the environment, and not to offer, promise, or grant any benefits to employees of Heraeus as consideration for the preferential treatment in the procurement of products or services ("bribery"), to ban forced and child labor, and to ensure for its own staff a fair pay, appropriate working hours, safety at work and a non-discriminating working environment.

Systematically identify risks

Heraeus conducts a systematic analysis as part of risk management to satisfy our due diligence obligations along the supply chain. With it we identify where procurement is risky and can deploy our resources in a targeted way to evaluate the suppliers and implement improvements.

We are especially aware of the heightened responsibility when doing business with valuable precious metals such as gold. In certain mining regions of the world there is an increased risk of civil wars and armed conflicts being financed with proceeds from raw materials sales. Likewise, these valuable metals are also used in criminal activities for money laundering. Heraeus uses the United Nations definition from the Against Trafficking in Persons and Smuggling of Migrants program as well as NGO reports to help us identify such risks.

For these reasons, we have set up a database with a risk profile for each precious metal supplier. An IT-supported, standardized evaluation process takes a variety of risk variables into account and checks them continuously. Our high standards for selecting and evaluating our suppliers in this area demonstrate our desire to do our part to ensure that the precious metals come from legitimate sources. Suppliers must respect human rights and comply with applicable standards for workplace safety and environmental protection as well as legal requirements regarding money laundering, corruption and criminal action in the individual countries where the Heraeus Group is active. Successfully passing a compliance check is a formal requirement for entering a business relationship with precious metals suppliers.

Selected criteria for the compliance check

Business partner evaluation

Review of headquarters location and type of company

Review of the industry

Online screening

Review of the bank account

Review of senior management and the beneficial owner

Material check

Review of origin and properties

Furthermore, we conducted a comprehensive review in the reporting year of all 2016 orders in accordance with the UK Modern Slavery Act, which focuses primarily on risks associated with slavery, human trafficking, child labor and slave labor. Generally speaking, there is an increased risk of violations with suppliers located in countries with a weak legal system. Heraeus maintains business relationships in 13 countries that are considered risk nations: Egypt, Bangladesh, India, Iran, Jordan, Colombia, Morocco, Peru, Russia, Swaziland, Thailand, Tunisia and Turkey. All suppliers located in these countries were subjected to special screening

that included reviewing sanctions lists as well as newsletters and reports from NGOs and other associations. No transactions in the case-by-case assessments yielded indications of a concrete risk. We will continue to conduct and develop these evaluations.

Ensuring greater due diligence with precious metals

Heraeus' Compliance Management system assures the special due diligence needed for precious metals procurement and trade, using its own Sustainable Sourcing guideline. All new precious metals suppliers are obligated to sign our Code of Conduct for Precious Metal Suppliers of Heraeus prior to signing the contract. We want to ensure with our review process that the precious metals come from ethical sources.

Our Compliance Management defines the requirements for evaluating suppliers and their raw materials. Documents and transaction data must prove that the origins of the precious metals are beyond reproach. We adhere strictly to the criteria of the London Bullion Market Association's Responsible Gold Guidance as well as the Supplement on Tin, Tantalum and Tungsten from the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Since 2012, Heraeus has had its Compliance Management system audited regularly to the LBMA standard by an independent third party. We follow all recommendations made by the auditor to further develop the system. The auditor's report is accessible to the public.

All precious metal suppliers to Heraeus are regularly subjected to a compliance check every one to three years, and they present the necessary documentation to us every one to three years for confirmation. In those requirements, we categorize raw material sources into industrial secondary raw materials from our customers, products of foundries and primary raw materials from mines. We request that the foundries and mines provide evidence of certification to an internationally recognized standard that meets our high requirements. Heraeus only accepts precious metals from mines if an on-site audit reviews and guarantees compliance with the Code of Conduct. As a rule, Heraeus requires an audit report from a respected independent organization. If no certification is available, a Heraeus expert conducts an independent review of mines based on a

catalog of criteria derived from the LBMA RGG Questionnaire for Mined Gold. If any doubts remain after our review, we require additional documentation from our partners. And if there are well-founded and long-term concerns, we end the business relationship or reject new partners.

Heraeus acknowledges these memberships and standards for a conflict-free value chain by its suppliers

Responsible Jewellery Council (RJC)

Certification for 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 of companies in different industries whose supply chains include conflict minerals.

Fairtrade Sourcing Programme

Program introduced by Fairtrade to support small farmers in increasing revenue and securing a sustainable future.

Fairtrade Standard

Certification of gold from craft workshops and smaller mining companies that meet the highest standard for ethical, responsible action.

Heraeus actively encourages people to uncover violations of the compliance guidelines by providing regular training for employees in precious metals trading and recycling, having an internal contact person as well as a tip hotline to an external ombudsman. We want to make our value chain more transparent and sustainable by continually expanding our engagement and commitment. To this end, we engage in dialogue with partners from business, government and civil society. For example, Heraeus is a member of a variety of precious metals associations at the national, European and international levels to continuously improve due di-

ligence standards in particular with regard to gold, tin, tantalum and tungsten. These organizations include the IPA (International Platinum Group Metals Association) and the FVEM (Fachvereinigung Edelmetalle).

All tips and inquiries from third parties regarding our business partners in precious metals trading and recycling were investigated during the entire reporting period. Since Heraeus Compliance Management received its first LBMA certification in 2012 as regards compliance with the LBMA Gold Guidance provisions, an independent third party has confirmed every subsequent year that we have implemented processes and systems that reflect these provisions.

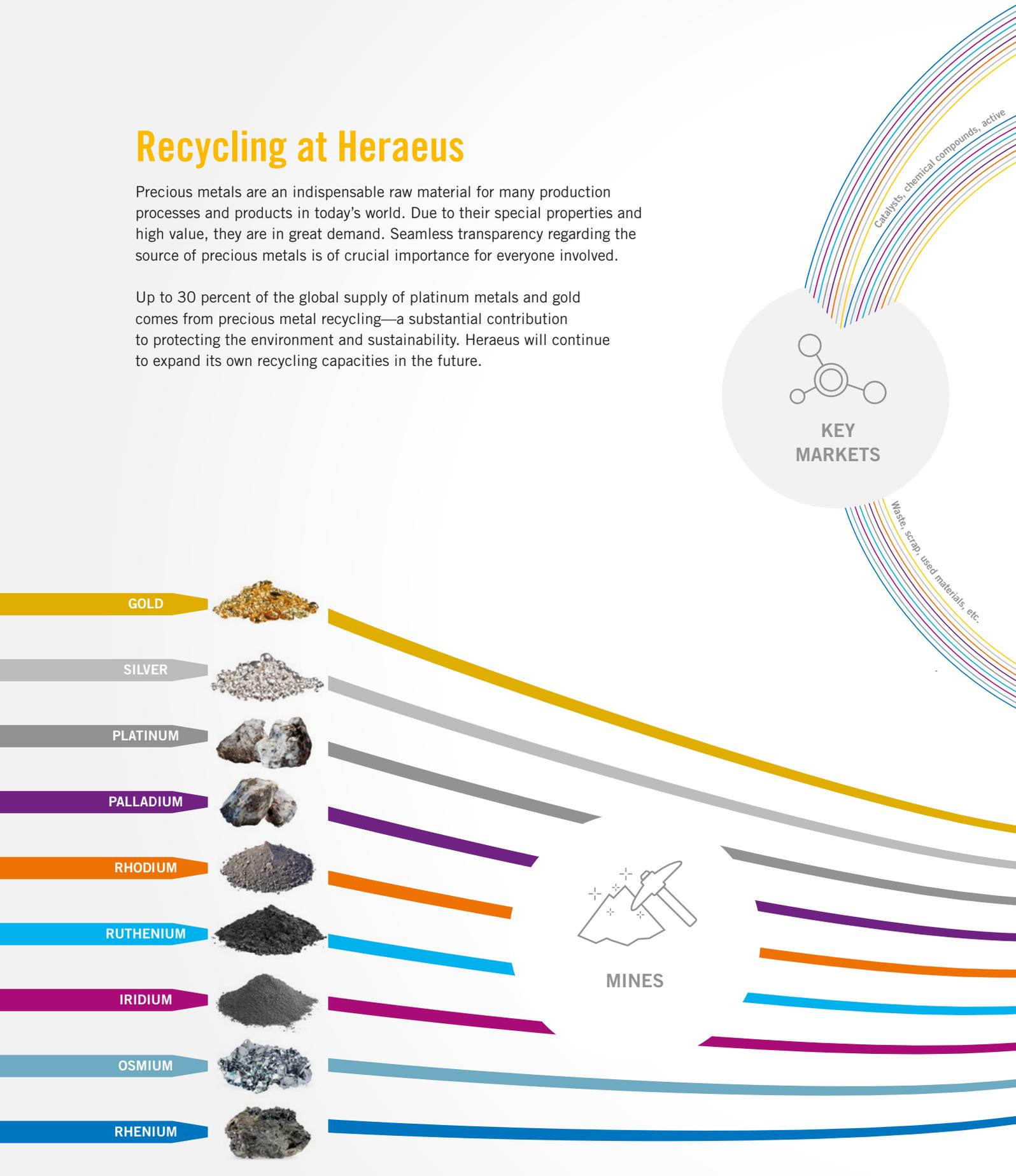
Outlook

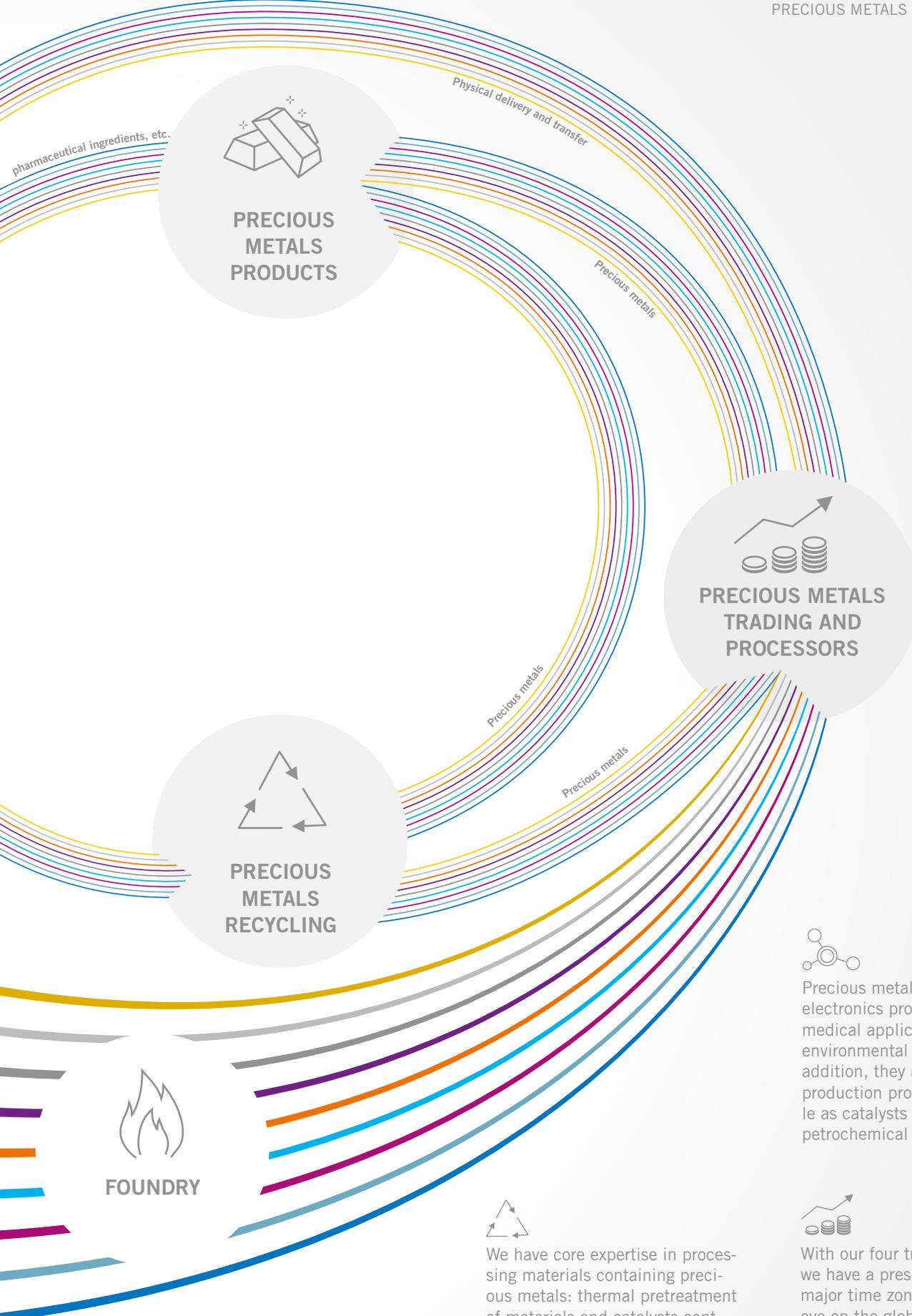
We plan to maintain our high standard in the future by securing our due diligence in the precious metals area. The Heraeus Code of Conduct for Suppliers will be rolled out in 2017 to further elucidate our requirements for all business partners. Moreover, we will continue to expand and standardize our risk analysis and evaluation process. Our future plans include incorporating information from NGOs and associations more systematically and taking into consideration the EU's Handbook for economic operators on the identification of conflict-affected and high-risk areas and red flags.

Recycling at Heraeus

Precious metals are an indispensable raw material for many production processes and products in today's world. Due 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 everyone involved.

Up to 30 percent of the global supply of platinum metals and gold comes from precious metal recycling—a substantial contribution to protecting the environment and sustainability. Heraeus will continue to expand its own recycling capacities in the future.





Precious metals are found in electronics products, vehicles, medical applications, and environmental technologies. In addition, they are also used in production processes, for example as catalysts in the chemical or petrochemical industries.



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



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



Jonas Shen is a member of the EHS team at the Shanghai location. He is responsible for the development and implementation of activities on site. Here he is reviewing the ongoing lab protocol together with lab analyst **Audrey Li**.

 “We introduced fundamental processes on site for a sustainable implementation of workplace safety and environmental protection—they are part of our global goals.”

Environment and occupational safety Sustainability in production

We commit ourselves to the responsibility of creating safe working conditions, promoting healthy work habits, protecting the environment and conserving natural resources. These principles are firmly anchored in the Heraeus Group as well as our Sustainability Guidelines. Based on the company-wide Environment, Health and Safety (EHS) policy, our Heraeus locations are setting goals and deriving concrete projects from them.

At the Group level we have launched an excellence initiative as part of our Vision 2020, in which all locations will implement the highest standards for EHS as well as standards in operations. To achieve this objective, we are expanding our systematic management

approach worldwide to comply with internationally recognized norms OHSAS 18001 for workplace safety and ISO 14001 for environmental management.

Its most important building blocks include:

- › Collecting data on environmental, safety and health indicators to monitor achievement of goals as well as to implement the EHS policy
- › Legal register for auditing purposes with regard to legal requirements
- › Incorporation of EHS processes in setting goals, revenue and cost planning of the operating units

Our goal is to have the appropriate management systems established at every production location by the year 2020 and to perform regular internal audits on environmental efficiency and safety. By the end of 2016, 45 percent of production locations had already established a management system according to the guidelines. We are currently working with the remaining locations on the implementation.

Policies, management standards, key indicators and strategic goals are determined and the corresponding reporting is performed at the Group level—everything is closely aligned with the responsible coordinators and managers on location. A Heraeus Competence Center promotes international sharing of knowledge and best practices, and hosts a working meeting twice yearly. In addition, the Heraeus EHS board began meeting quarterly in 2016 to further develop the global agenda and evaluate the status of strategic goal achievement.

Among our employees, we want to strengthen their awareness that every individual can contribute to environmental protection and safety and everyone is responsible for doing so in the workplace. Only then can we ensure that the objectives will be pursued in everyday business activities and become an integral part of our processes. We qualify our employees regularly through internal and external training as well as practical exercises for a proactive and independent commitment.

Compliance with regulatory requirements and standards

Our business activities are based on our own company's standards as well as the applicable regulatory requirements for environmental protection and workplace safety, which have been supplemented and specified through numerous administrative provisions as well as technical policies and authorizations. We have established the processes for ensuring legal compliance as part of our Compliance Management program. In addition to regular compliance audits, the legally appointed representatives monitor the individual relevant fields of law and the resulting obligations. These obligations are documented for each area with the help of an IT-supported standardized process (obligation tracker) and their implementation is reviewed at regular intervals.

In particular, the use and production of chemicals are subject to strict regulatory requirements for safety. The precautionary principle for protecting human health and the environment is considered the highest order and benchmark here. We maintain more than 70,000 safety data sheet worldwide for this purpose and consistently implement the individual regulations for each country where we are active. The safety data sheet are prepared centrally using a database-supported software program. The EU regulation governing the registration, evaluation, authorization and restriction of chemicals (REACH) plays a special role here. With the support of various consortia, over 65 precious metal and around ten non-precious metal registrations were registered in the individual tonnage levels for Heraeus.

Energy and resource efficiency at Heraeus

At Heraeus, all locations share the responsibility for environmental protection at the operational level and actualize potential for improvement wherever possible. In that context, we are focusing on energy and resource efficiency in production and administration and setting high environmental standards for our new construction as well as the expansion of existing facilities.

Growing business area: precious metal recycling.

For Heraeus, material usage is a key economic as well as environmental control parameter. We are constantly sounding out potential opportunities for savings and improving our resource cycle management. One excellent example is precious metal recycling at Heraeus, where precious metals including platinum and gold are recycled.

Precious metals are indispensable in today's industry and are found in a wide variety of products. Mines no longer produce enough precious metal to satisfy growing industrial demand. That makes the precious metal recycling business line—where Heraeus holds a strong market position—extremely important from both an economic as well as an environmental perspective. Precious metal recycling consumes only a fraction of the energy required by mining (70 to 100 times less) and produces far lower CO₂ emissions (200 to 300 times less).

Studies by the International Platinum Association (IPA) indicate that about 25 to 30 percent of the global demand for platinum metals is already being met through recycling.

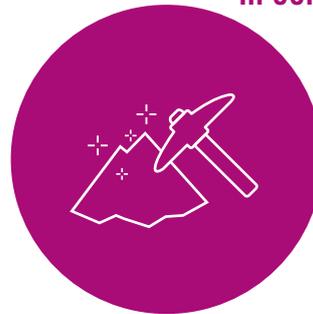
 **90%**
RECOVERY RATE FOR PLATINUM METALS

fertilizer industry and bulk-material catalysts for industrial chemical processes. The recovery rates in these processes far exceed 90 percent.

Environmentally friendly processes in production and administration. In addition to conserving resources through recycling precious metals, we also want to reduce energy consumption at our locations worldwide. Our efforts here concentrate especially on the energy-intensive processes of producing quartz glass and processing precious metals. To reduce energy consumption and emissions, we are focusing primarily on increasing efficiency in processes and machinery as part of our Excellence Program.

In addition, we want to further reduce hazardous waste and emissions in water and the air. In the reporting year, for example, we were able to reduce waste water volumes from precious metal recycling at the Hanau location by 14 percent, which equivalently reduced the use of caustic soda for purification by 17 percent. Not only are we optimizing processes for environmental protection and efficiency in production at Heraeus, initiatives for conserving resources are being launched in our administrative area as well. Heraeus has established the company-wide use of cloud printers and a digitalization concept, enabling us to make an important contribution to climate and environmental protection. In 2016 alone, this saved more than 450,000 sheets of paper at locations in Germany. This corresponds to saving 30 trees, a CO₂ reduction of 12.6 tons and 4.6 million liters of water. At the same time, the number of printers was reduced by 75 percent. A new digitalization concept further contributes to the paperless office, allowing employees everywhere to access digital information from a single platform and share their knowledge.

ENERGY CONSUMPTION from precious metal processing in comparison



MINING



RECYCLING

High environmental standards in construction and modernization projects. We incorporate environmental and climate protection in our decision-making when investing in our plants and equipment. We apply high environmental standards worldwide for new construction and invest in quality and durability. One example is the precious metals plant going into operation in 2018 in Nanjing, China. Energy efficiency was already taken into consideration during construction, as the building is insulated according to the latest standards and designed so that natural light will make up a significant portion of the lighting during the day. The exhaust air will be purified by high-efficiency filtration units, the waste water treated in a patented process developed by Heraeus and disposed of in compliance with local regulations. All production areas will also be equipped with efficient, cutting-edge air filtration systems to ensure high-quality fresh air for employees.

Prioritizing workplace safety

We always keep an eye on potential safety risks in our production processes, for example high pressure and temperatures up to 5000°C, which can occur in quartz glass production in particular. Workplace safety for our employees in the production facilities and administrative units as well as the safety of our plants and equipment therefore take top priority. We systematically test and document workplace safety in a preventive approach with risk assessments.

We implement targeted countermeasures based on the results of these risk assessments. For example, Heraeus invested in recent years in structural shielding measures and improved personal protective equipment against toxicological and allergenic substances. We test the effectiveness of measures with regular safety inspections and routine checkups by the company physician.

We utilize a broad spectrum of measures to improve safety, such as regular onsite employee training and systematic safety checks of systems and processes in addition to the risk assessments and regular inspections. Likewise, employees are informed about risks and preventative measures through a variety of communication channels such as the intranet, newsletters and workshops.

Every location prepares for emergencies specific to the location, for example with fire extinguisher training or safety alarm drills. Locations in residential and urban areas are generally subject to stricter safety requirements. Moreover, special activities and events raise employee awareness, such as the pilot project on near miss and the safety quiz on silica glass production in Bitterfeld addressing workplace safety. In addition to these measures, we actively promote our employees' health (see "Employees and company culture").

Selected safety requirements for locations in residential and urban areas

- Internal alarm and hazard prevention plans

- Transmission of necessary information to the appropriate authorities

- Internal checks of compliance with these duties

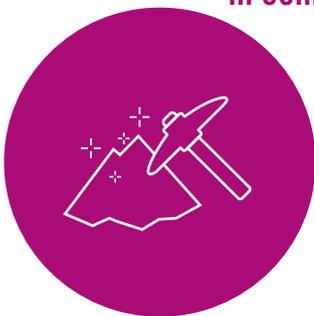
- Informing the general public about safety measures

As a member of associations, Heraeus promotes an active exchange between industry and the public. Topics such as safety and health are also a focal point here. As part of this dialogue, for example, the IPA is involved among other things in fighting workplace-caused allergies from certain platinum salts. Heraeus supports this engagement with active cooperation in the individual association committees. This work focuses on diagnostics and standardizing targeted countermeasures worldwide.

Outlook

Our activities in the future will focus on expanding standardized, company-wide management systems for continually improving our performance in the areas of environmental protection and workplace safety. These primarily include introducing and developing uniform company-wide key indicators as well as intensifying sharing of best practices across the company. We will continue to pursue our commitment to environmental protection and safety not only at our existing locations, but as part of any future investment projects.

Volume of CO₂ EMISSIONS from precious metal processing in comparison



MINING



RECYCLING



Nicole Beeser works as an HR Business Partner at the Hanau location. She consulted with caregiver Milica Ehmann on the topic of work-life balance.

 “Sometimes you reach a point where you can’t move forward on your own, and you need professional help to overcome the challenges.”

Employees and corporate culture Responsibility as an employer

Competent and motivated employees are a key factor for our success. For that reason, we pursue not only gaining and retaining qualified employees at Heraeus, but also continuing their training and education as key aspects of our global HR strategy. We want to be appealing as an employer and preserve the health and performance of our employees in order to remain innovative and competent in a rapidly changing environment.

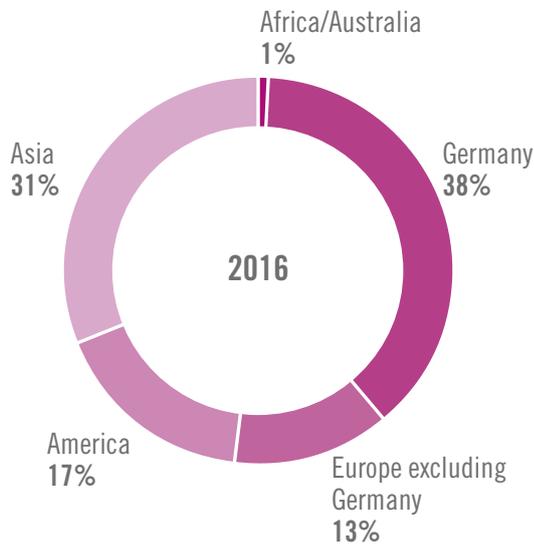
The Sustainability Guidelines and Code of Conduct in the Heraeus Group Guiding Principles give us crucial direction in this area. They aim to promote respectful interaction and attention to our fundamental values, and to ensure fair working conditions. Our commitment

to diversity is a particularly decisive success factor for our globally active company and is defined in our Guiding Principles. We aim for our Compliance Management to ensure a working environment free of discrimination and pursue every tip about possible violations.

As of December 31, 2016, Heraeus employed a workforce of 12,369 worldwide. The number of employees declined only slightly, by 108 people, compared to the previous year (12,477).

Responsibility for HR topics is distributed operationally: Central HR management at Heraeus establishes uniform principles company-wide. However, they also

Employees by region



take into account the different decentralized business models as well as different cultures and organization types. The measures vary from one region to the next depending on the legal conditions and size of locations. We continually review how to expand the offering to all of our locations, for example, via aligned efforts with other companies on location or through external service providers.

Dialogue with employees is a part of our company culture, in the form of employee meetings and development appraisals. Heraeus also works closely as an employer with employee representatives such as unions and works councils where they exist.

We align our activities with Heraeus' HR Vision 2018. We underscore the importance of a company culture that combines the positive values of a family-owned company, such as in our strong ties to our location, with the requirements of a highly competitive and challenging global market environment.

Leadership culture and talent management

The topic of leadership at Heraeus plays a key role in implementing the vision. The leadership model, which was introduced worldwide in 2015, established a modern and global leadership culture that was the same all over the world and supports our growth objectives. Training sessions were held at the individual locations to promote the global implementation of this leadership concept. In addition, the Heraeus bonus system now incorporates a quality-related component for the Leadership Factor.

A modern culture of leadership also includes hiring more women in leadership positions and opening up appealing career paths for them at the company. That is a challenge, since there are very few women who are managers in technology professions on the job market. Despite a high percentage of people studying and apprenticing in technical and natural science fields, only about one third are women, so we are working to promote our next generation of talented women.



Heraeus Leadership Model

In 2015, the Supervisory Board and Board of Management defined targets for the different management levels at Heraeus Holding GmbH. These include increasing the percentage of women to ten percent at the top leadership level and 30 percent at the next management level. The percentage of women on the supervisory board should remain at 25 percent. These goals should be achieved by the year 2022. Four men and four women sit on the Shareholders' Committee.

In light of demographic change, succession planning is becoming increasingly important. Working together with HR managers at the different locations around the world, we have developed a process for determining successors for strategically relevant positions early on and preparing them for the responsibilities involved. With our global talent management, we further attempt to hire from within for management roles and key functions whenever possible. This enables us to promote the transfer of knowledge between regions and locations, tap into new synergies and take advantage of collaboration potential. Twenty top talents from different locations and business units at Heraeus are currently going through a two-year program as part of the talent management program.

Company benefits

Our employees receive modern, benefits-oriented compensation that reflects conditions at the individual locations. For example, in Germany this is based on collective agreements in the chemical industry and includes a share in the company's success. In the bonus concept introduced in 2015, we gave our 2,000 salaried employees around the world a uniform share in the company's success as well. Moreover, employees can also enjoy additional financial benefits such as the public transportation travel cost benefit that has proven popular in many locations. In places where there is no statutory pension insurance, we help our employees with financial security for their retirement through company solutions such as contributing to a pension insurance plan. For example, all employees in the US have access to a savings plan that we established with a leading pension insurance provider. We aim to keep our employees well-informed about their eligibility for additional benefits. One good example is the overview that we make available to our employees in Singapore. It provides an overview of the benefits, such as time off or compensation, they receive for child care, the birth of a child, their wedding or bereavement.

Achieving a better work/life balance

We want to help our employees balance their family life and career well. Small children in particular need good care and nurturing. Wherever possible, we offer flexible work schedules and information about local childcare offerings as well as short-notice solutions 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 constantly reviewing the needs and options for support. To do this, we encourage that locations share information about good offerings, and we are seeing growing involvement all over the world. For example, a comprehensive advising offering was established in the US. A care advising office was launched at the Hanau location in 2014, and it assists around 100 employees a year.

**ADVISING
AROUND 100
EMPLOYEES
PER YEAR IN THE
CARE ADVISING
OFFICE**

Furthermore, the experts at the Heraeus social counseling service support our employees at locations across Germany, providing completely confidential assistance to those in especially stressful situations in their personal and professional lives. In the US, we assist our employees via the Cigna Employee Assistance Plan (EAP). Employees and their family members can use the 24-hour hotline to contact experienced experts at Heraeus confidentially, who can help them directly or put them in touch with a local contact person.

Commitment to health

Heraeus cares about the health of all our employees. For that reason, our activities often go beyond the legally required obligations. We have established a company health management program that is set down in a binding employer/works council agreement in Germany, for example.

Compared to other countries, Germany has a high level of legally required insurance protection in case of illness including a specified employer contribution. We review the level of protection at other locations and contribute financially as needed to ensure that our employees have good healthcare. For example, we support our employees in the US and South Africa with financial contributions to health insurance, which also offers special and bonus benefits in addition to medical care, such as CIGNA healthcare.

When it comes to health issues, we want to stand by our employees' side and be a trusted partner they can turn to. The specific benefits vary by location. In the US, for example, our employees and their family members can consult with a professional health expert at any time. In Singapore, we offer our employees a comprehensive package with different healthcare benefits, including an annual checkup. In Germany, company doctors provide care and their service is part of emergency medical management as well as statutory preventative healthcare. In addition, wherever possible we offer our employees annual comprehensive health screenings with individual consultations on personal risks. The individual results and recommendations are noted in a special health passport. Over the last five years, more than 2,700 employees have taken part in this program in Germany alone.

An ergonomically optimized workplace and balanced athletic activity are crucial components that support our employees' performance and capabilities. With this in mind, we work hard to create a work organization and environment that promotes health. Likewise, we encourage employees to acquire health-related skills such as stress management or ergonomic training at their workstation. In Singapore, for example, we offer weekly power-up sessions as a group workout to start the week. We also support our employees in improving their general fitness outside of work by providing information and discounted memberships.

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

High level of training and continuing education

Whenever possible, we cover our needs for qualified employees by hiring graduates of our in-house training programs. Heraeus has a close relationship with educational institutions in many locations and has begun to establish a dual education offering outside of Germany as well.

We have long supported the successful dual education program in Germany. The spectrum of more than 40 training and university study programs ranges from machine and equipment operator, skilled chemical production worker, electronics technician, industrial manager, skilled warehouse logistics worker to a dual master program for Bachelor's degree holders. We are reviewing the possibility of introducing a doctoral program in 2017.

Eighty-two employees successfully completed their training or education at Heraeus in the reporting year, with 67 hired at Heraeus. Fifteen employees left the company after completing their studies—generally to continue with their education. At the end of the fiscal year, the company employed a total of 340 apprentices and dual program students in Germany, which continues to be almost seven percent above the average training rate.

With Heraeus Trainee Program, we recruit high-performing university graduates from all over the world and a wide variety of academic fields. These graduates gain practical insights into their areas of expertise, receive mentoring in professional and personal development and work independently on projects. We also promote

international exchange between the Global Business Units with job postings abroad.

Our goal is to build the skills and expertise of every single employee on an continuing basis. We rely primarily on the

dialogue between employees and managers in continuing education and training. The performance review

is the starting point, where the

two discuss development potential and define follow-up actions such as seminars, training and workshops. One prerequisite for successful development is regular, individualized feedback from the supervisor as part of the annual performance review, which is standardized for Heraeus employees all over the world.

Outlook

We will continue to support Human Resources in the Global Business Units with measures and tools to find and retain the right employees with good qualifications. We want to remain an appealing employer for our employees and strengthen their loyalty to the company with our program for top talents, effective succession planning and internationalizing our training program.



Process Engineer **Warren Sygulla** and his children, **Abi** and **Benji**, participate in the Twin Cities Heart Walk, an opportunity to live the mission: to improve patients' lives.



“By participating in the Twin Cities Heart Walk everyone can contribute to raising awareness about the danger of heart disease.”

Locations and foundations Corporate social responsibility at Heraeus

We work to add value at all of our locations and are committed to responsible action to shape our social environment. We primarily support social issues through charitable foundations that our company's shareholders have founded and where shareholders serve on the governing bodies. These include supporting excellent continuing education for teachers, innovative ways of promoting young talent in the field of physics and comprehensive support for families. As part of our company culture, we especially value and support volunteering among our employees.

Working for the common good at every location

Heraeus locations all take charge of their own civic engagement and tailor it to meet local needs. Our employees are active in a diverse array of projects.

Our location in St. Paul, Minnesota, USA supports a variety of initiatives in the area. These include the American Heart Association's annual Twin Cities Heart Walk since 2011, which raises money for research and education activities to fight heart disease.

The company has also partnered with the Science Museum of Minnesota for the Girls in Science and Technology initiative since 2015. Students learn about therapies and the function of medical components, such as brain or spinal cord stimulation with pacemakers or hearing aids.

In Singapore, Heraeus employees got together to organize charitable activities regularly. They cleaned up trash in public places, followed by a creative competition for repurposing the collected materials in late 2016.

Heraeus in Germany focuses on integrating socially disadvantaged young people and refugees. The company has taken on 19 young people with difficult work background conditions as apprentices as part of its “Joblinge” initiative since 2012. We have taken on a refugee as an apprentice in both 2015 and 2016 and offer multiweek practicums for refugees as well. Our commitment is also evident in the two Refugees’ Days events in Hanau, where we provided information about training at Heraeus and the different professions we train people for.

Employees in Bitterfeld get involved in the Community Day event every year, addressing social issues in the region. Since 2009, they have redesigned or renovated the city’s youth clubs, playgrounds and kindergartens for children from a socially disadvantaged environment – and with the support of our service providers and suppliers as well, who donated to the campaign.

Heraeus foundations promote education and social cohesion

The Heraeus family laid the cornerstone for its broad civic engagement when it launched its first foundation in 1897. Descendants of company founder Wilhelm Carl Heraeus have continued this tradition by starting more foundations that have a unique focus and that complement one another.

The **Kathinka Plathhoff Foundation** works to support and promote education for children and young people as well as to provide active support to seniors. The foundation’s Family Academy offers workshops that promote understanding between parents and children as well as support seniors, thereby strengthening the family. Moreover, the foundation’s facilities include a

Heraeus welcomes and supports employee volunteer efforts in their free time when they work to shape and improve the community. This type of engagement is also in the employer’s interest, who perceives social responsibility in a variety of ways through its own experiences as well as its employees.

Civic engagement as part of the employment contract at Heraeus

senior living facility, its own mobile nursing service, a children’s day center and a family center.

↳ www.kp-stiftung.de

The **Heraeus Education Foundation** works to promote continuing education for educators, focusing on training measures for teachers and administrators. In keeping with the motto “Making connections to improve schools,” the foundation reaches around 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** is devoted to promoting research and education in the natural sciences, and particularly physics. It furthers the sharing of scientific ideas, organizes international symposiums and seminars, supports talented students and contributes to improving how the natural sciences are taught in schools. The foundation’s work is known all over the world.

↳ www.we-heraeus-stiftung.de

Outlook

Heraeus will continue to promote social responsibility and engagement at our locations and through our employees. We present positive examples in our company’s media and honor the initiators. And a portion of the company’s profits will continue to flow into the foundations, which are also Heraeus shareholders.

Facts and figures

Index

Company and sustainable economic activity

Specific description	Reference/information
Name of the organization	Heraeus Holding GmbH
Most important brands, products and services	p. 6–7, 18–19
Headquarters	Heraeusstrasse 12-14, 63450 Hanau, Germany
Facilities	Heraeus online portrait: heraeus.com/en/group/about_heraeus/heraeus_worldwide/heraeus_worldwide.aspx
Ownership structure and legal form	Family-owned company
Markets served	p. 5
Details about the organization	p. 4–5
Information about employees and other workers	p. 30
Regional distribution of employees (as a percentage)	Germany: 38 Europe excluding Germany: 13 America: 17 Asia: 31 Africa/Australia: 1
The organization's supply chain	p. 20; 24–25
Important changes during the reporting period with regard to size, structure and ownership structure of the organization or its supply chain	No significant changes in the reporting period
Attention to the precautionary principle	Strategy: p. 8 As to environmental protection: p. 27 As to safety and health: p. 33
Obligations to outside initiatives; memberships in associations	p. 22–23; p. 29
Statement by the top decision-maker	p. 2
Most important developments	Risk management: p. 11 Business magazine 2016: apps.heraeus.com/epaper-Heraeus_Magazin_16_EN
Values, principles as well as standards and norms of conduct	p. 12–13 www.heraeus.com/en/group/about_heraeus/corporate_responsibility/corporate_responsibility.aspx
Compliance Management and reporting process	p. 10; p. 22–23; p. 27
Compliance training	p. 10
Structure and composition of the Board of Management	Heraeus online portrait: heraeus.com/en/group/about_heraeus/corporate_boards/corporate_boards.aspx

Specific description	Reference/information
Responsibilities within the company for sustainability issues	p. 9
Approaches for involving stakeholders	p. 10–11
Process for defining report content and limits	p. 11
Key aspects	p. 12–13
Report details	p. 3

Products and solutions

Specific description	Reference/information
Quality management	p. 14–15
Products and solutions incl. examples and key effect indicators	p. 15–19
Innovation management	p. 17–18
Scope and expenditures for research and development	€150 million; more than 700 employees in over 30 centers for research and development
New patent applications	more than 5,750
Promoting startups within the company	p. 17
Approach to promoting innovation Heraeus Award – Innovation category	p. 18
Submissions for the Heraeus Award	more than 70

Procurement and supply chain

Specific description	Reference/information
Purchasing and procurement management approach	p. 20–21
Risk analysis and identified risks	p. 21
Percentage of suppliers in the areas Precious metals trading and procurement, which is reviewed with the help of a compliance check	100

Procurement and supply chain

Specific description	Reference/information
Requirements for suppliers in the areas of precious metals trading and procurement	p. 21–22
Percentage of mines from which Heraeus purchases precious metals, that have been audited by Heraeus or independent third parties	100

Environment and occupational safety

Specific description	Reference/information
EHS management	p. 26–27
Percentage of production locations with an EHS management system in compliance with ISO 14001	45
Approaches to resource cycle management	p. 24–25; p. 27–29
Environmentally friendly processes in production and administration	p. 28
Electricity consumption in kilowatt hours	235,805,887.91
Natural gas consumption in cubic meters	39,257,337.7
Water consumption in cubic meters	466,450.9
Waste water in cubic meters	186,558.4
Nitrogen oxide emissions (NOx) in tons	844.5
Sulfur oxide emissions (SOx) in tons	3.8
Volatile organic compounds (VOCs) in tons	15.2
Non-hazardous waste in tons	Recyclable: 6,504 Residual waste: 3,233.7
Hazardous waste in tons	Recyclable: 1,663.8 Residual waste: 977.1
Approaches for safety in the workplace, equipment and facilities	p. 28-29
Accidents in the workplace	102

The figures have been compiled by 14 production locations and apply within a limited framework due to data availability. The data collection is being further systematized in order to report on key figures and indicators company-wide in the future.

Employees and corporate culture

Specific description	Reference/information
HR management:	p. 30–31
Leadership culture, succession planning and talent management	p. 32
Participants in the Top Talent program	20 employees
Company benefits	p. 32
Approaches to promoting a work/life balance	p. 32
Approaches to promoting health	p. 32–33
Number of employees who received help from the care advising office (Germany)	91 per year
Approaches to training and continuing education for employees	p. 33
Number of apprentices and dual program students in Germany	340 in more than 40 fields of study / apprenticeships
Education rate in Germany as a percentage (%)	7
New hires of apprentices/ dual program students in Germany	80 per year
Career guidance for high school students	Participation in the “Businesses in the schools” program and awarding 164 practicums to students in 2016
Meetings for performance evaluation and about options for career development	p. 33

Locations and foundations

Specific description	Reference/information
Principles and the “engagement clause” in the employment contract	p. 34–35
Examples for civic engagement at Heraeus locations	p. 34–35
Kathinka Platzhoff Foundation	p. 35
Heraeus Education Foundation	p. 35
Wilhelm and Else Heraeus Foundation	p. 35

Publication credits

Publisher

Heraeus Holding GmbH
Communications & Marketing
Heraeusstrasse 12–14
63450 Hanau, Germany
Phone +49 6181 35-5100
pr@heraeus.com
www.heraeus.com

Editorial staff

Jasmin Krenzer, Communications & Marketing, Heraeus
Christoph Ringwald, Communications & Marketing, Heraeus
Scholz & Friends Reputation, Berlin

Concept/Design:

David Leister, Visual Communications, Heraeus
Scholz & Friends Reputation, Berlin

Graphics

Heraeus

Photography

Wonge Bergmann, Frankfurt am Main
Wolfgang Hartmann, Visual Communications, Heraeus
Dr. Jürgen Müller-Schäfer, Heraeus Precious Metals
Xiao Nan, Shanghai
Mike Krivit, Krivit Photography, Minneapolis

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



100%
OF MINES

that supply us with precious metals are audited.

Recovery rates through precious metals recycling at far above **90%**

Precious metals recycling uses only a fraction of the energy consumed by mining and far lower

CO₂
EMISSIONS.

150

MILLION EURO
for research and development in 2016.

340

trainees and dual-program-students at Heraeus' locations in Germany alone.

This reflects an above average education rate of

7%

30

development centers around the world ensure new innovative products and information sharing with our customers.

