



Heraeus Precious Metals

**A UNIQUE PARTNER FOR PRECIOUS METAL SOLUTIONS**



# Heraeus: A Tradition of Innovation



In 1856 Wilhelm Carl Heraeus, a pharmacist and chemist, was the first to melt platinum on an industrial scale. The revolutionary process brought with it a new era in the precious metal industry and laid the foundation of the present Heraeus Group.

Today, Heraeus is a global, privately-held family company that utilizes its expertise in precious metals and technology to provide business-critical solutions to customers across a broad range of industries.

With a focus on innovation, operational excellence and entrepreneurship, Heraeus combines technology expertise and metals knowledge to produce breakthrough products

used in the automotive, steel, medical, high-tech, chemical, electronics and telecommunications industries, to name a few.

From the company's humble beginnings in Hanau, Germany to its strong global footprint today, Heraeus is guided by a single purpose: to continually strive to improve the businesses of every customer we serve.

# Integrated Solutions & Complete End-to-End Lifecycle Metal Management

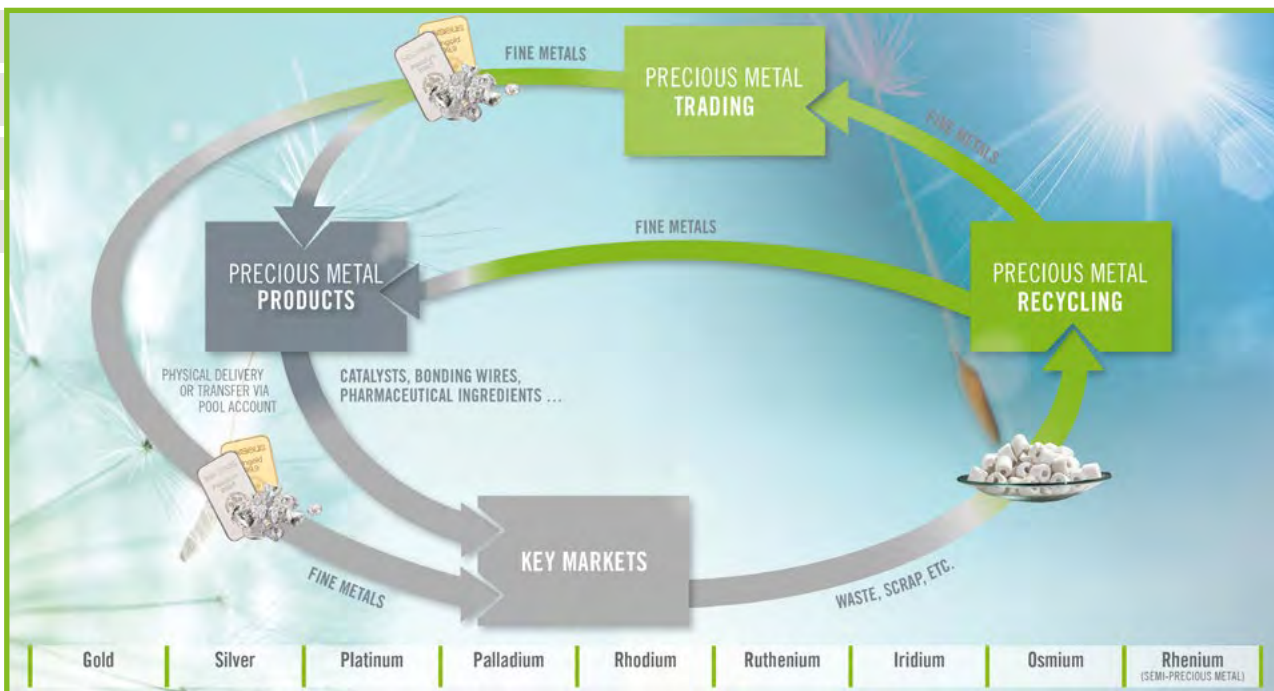


As the company's foundational business, Heraeus Precious Metals is a leading provider of precious metals services and products. We combine all activities related to our comprehensive expertise in the precious metals loop – from trading to precious metals products to recycling. With four trading offices and eleven production sites around the globe, Heraeus is the only true worldwide precious metal company serving the global market.

One of the advantages we provide our customers is our integrated and holistic view of their business. With the goal of truly serving the needs of our customers, Heraeus Precious Metals works hand in hand with the product businesses of Heraeus. By combining precious metal supply,

hedging, product expertise and recycling services, we offer our customers the industry's most comprehensive array of services for the entire precious metals lifecycle. With Heraeus managing your "full loop", we eliminate unnecessary complexity and position you to take advantage of opportunities for growth.

No matter what your precious metal needs are or where your business is located, you can count on Heraeus for proven and trusted world-class solutions.



# The Heraeus Advantage

From market insight to our unparalleled experience in every aspect of the precious metals lifecycle, Heraeus Precious Metals provides customers around the world with customized services to help them compete and succeed.

## ■ Global trading reach.

With trading offices in Hanau (Germany), New York City, Shanghai and Hong Kong, we provide you with anytime access to our network of precious metals traders.

## ■ The complete precious metals lifecycle experts.

Heraeus is a fully integrated precious metal specialist with direct access to sourcing from mines up to the manufacture of products. Our experienced team can provide a single point-of-contact, helping you reduce complexity while streamlining and simplifying your precious metal needs.

## ■ Serving your precious metal needs.

As a major precious metal services supplier, Heraeus combines state-of-the-art technology, world-class facilities and the industry's most experienced precious metal experts to give you unrivaled value and service.

## ■ Maximum compliance standards.

Heraeus' stringent supply chain policy ensures sourcing of metals from legitimate and ethical sources. In all our business relationships we are focused to ensure that our partners adhere to the principles of our policy.

## ■ Solving your unique challenges.

As experts in precious metals, Heraeus brings engineering know-how and technology innovation to helping you address your most complex challenges in the precious metals lifecycle.

## ■ The catalyst recycling expert.

Heraeus is one of the major recyclers of catalysts containing precious metals worldwide. We have the largest incineration capacity in the world.

## ■ A relentless focus on serving our customers.

For over 160 years, the growth and success of Heraeus has been built on three guiding principles: conducting business with **trust, integrity** and **innovation** so that our customers will benefit. Today, that trusted reputation is evident in our most recent survey where 90% of our customers stated that they would recommend us to others.

At **Heraeus Precious Metals**, the focus is not about meeting our customers' high expectations... our goal is to exceed them. Every time.





# Around the Globe... and Around the Clock



Trading Sites			
Recycling and Production Sites			
<b>Time</b>			

Business is a 24/7 enterprise. Companies cannot afford to sleep. That is why Heraeus has established a global network to provide you with continual access and a complete range of services for all your needs. Our global coverage is designed to always be there... whenever you need us.

Heraeus Precious Metals has a strong global footprint in the major areas of the world. Half of the Heraeus Precious Metals employees are located at our headquarters in Germany and our site in South Africa; the remaining half of our staff work in Asia and the Americas, providing a strong presence in these important markets.

Our four trading locations in all major timezones allow us to quickly react to price movements 24 hours a day. With our extensive network of various production sites, we provide close proximity to our customers. Our expertise in the logistics of precious freight and in dealing with hazardous waste provide advantages that will make your life as easy and worry-free as possible. Through our local refining premises in China and India we are able to treat your material locally.

# Our Experts and Expertise: Committed to Your Success

From trading to financial market knowledge to operations, Heraeus Precious Metals possesses the most experienced team in the precious metals industry. And these professionals are dedicated to your success: keeping your costs under control, making best use of your resources and minimizing risk.

## **Profit from Our Knowledge & Connections**

As a global precious metals leader, we are closely connected to mining companies, refiners, industrial users, traders, financial markets and investors.

Our well-established supply relationships with primary producers of precious metals build the foundation for a sustainable sourcing of raw materials. In addition, we have access to metals from secondary sources as a result of our extensive refining activities.

## **Market Insights, Advice & Counsel**

Heraeus Precious Metals provides you with timely market analysis and research, providing the clarity you need to make smart, strategic precious metals decisions. Our analysis and research activities include:

- The Heraeus Market Indications, a daily report highlighting important global economic developments affecting precious metal prices, published in English.
- The Heraeus Precious Appraisal, a weekly recap of important events and trends in the precious metals market, published in German, English and Chinese.
- The Precious Metals Forecast, our outlook on precious metals, published once a year in German, English and Chinese.
- Individual market surveys of specific precious metals or topics on request.

Subscriptions to the Heraeus Morning Commentary, the Precious Metals Update and the Precious Metals Forecast are available by contacting your Heraeus Sales Representative or sending an e-mail to [market.report@heraeus.com](mailto:market.report@heraeus.com).

EXPERTS AND EXPERTISE

# Physical Supply of Precious Metals



As one of the world's most trusted precious metals companies, Heraeus will provide you with the metal you need, in your required form and specification. You can access our web-based trading platform myHeraeus.com to see real-time prices and execute transactions securely online.

Additionally, we provide post-transaction services including logistics, insurance and customs declarations, if necessary. With multiple vaulting locations around the world, you can take advantage of shorter lead times and market opportunities.



## Gold

- Good delivery bars
- Investment bars
- Grains

## Silver

- Good delivery bars
- Investment bars
- Grains

## Platinum

- Good delivery bars
- Investment bars
- Sponge

## Palladium

- Good delivery bars
- Investment bars
- Sponge

## Rhodium, Ruthenium, Iridium

- Sponge
- Powder

Heraeus precious metal bars are accepted on all major trading locations & exchanges.





## Pool Accounts & Worldwide Transfers



Fast and flexible – isn't that the best way to manage your precious metals? In every aspect of business, timing is everything. When it comes to precious metals, you need a partner who will help you keep pace with the speed of business.

With a pool account at Heraeus, you benefit from our worldwide network as your precious metals become globally available. Using precious metal transfers, you can pass on pool account credits within Heraeus or to other market participants, such as for processing.

These transfers also enable you to receive metal on your account. And our web-based Transfer Tool [myHeraeus.com](http://myHeraeus.com) makes every transaction fast, convenient and secure.

Heraeus can provide physical delivery of your precious metal balance in various specifications and forms, such as grains, plates, sponge or bars.





# Precious Metal Risk Management & Financing



## Secure prices and clarity in an insecure market

Precious metal markets are volatile and unpredictable. Severe price fluctuations challenge companies, impacting their margins, capital requirements, competitiveness and their business success. With our extensive experience and unparalleled track record of success, Heraeus helps customers navigate this uncertainty and volatility.

Heraeus provides customers around the world with trusted professional management to mitigate potentially negative effects. Using a variety of hedging strategies, tools and instruments, we can help you optimize your precious metals activities and provide you with stable prices, planning security... and peace of mind.



### ■ Leases and swaps.

In connection with product or refining business at Heraeus, we can bridge your temporary metal needs. With the help of a lease or swap you obtain – for a limited period of time – the necessary liquidity without having to buy the metal permanently.

### ■ Limit orders.

This is a convenient solution if you have a particular price level in mind at which you want to buy or sell your metal. Heraeus will continuously monitor the market for you 24 hours a day and execute the trade when your target price is reached. Nonbinding price information is also available.

### ■ Options.

You can exercise options to protect against disadvantageous price movements and benefit from favorable price movements. An option gives you the right, but not the obligation, to buy or sell a particular quantity of metal at an agreed price at the end of an

agreed term. An option is only exercised at the time of expiration if the price move during the term was beneficial to you.

### ■ Forwards.

You can secure the price of future precious metal supplies or sales by executing a forward trade, protecting you against the uncertainty of future price movements for a defined period of time. Payment for the metal is only due at the end of the forward period. Once that period ends, the metal can either be physically delivered or the transaction is financially settled.

### ■ “Flexible Forward.”

This innovative hedging concept designed by Heraeus provides a unique advantage for product business customers: we release the metal flexibly over the duration of the forward period – whenever you need it and always at the same pre-agreed price.

# Sustainable Recycling: An Environmentally Responsible Approach

## Sustainable



From mining to the purification processing to convert them into a useful form, precious metals are very energy-intensive. Heraeus Precious Metals provides recycling services that sustainably secure precious metal availability from secondary supply.

Heraeus utilizes state-of-the-art recycling technology to help customers manage this important part of the precious metals lifecycle. Whether it's an industrial catalyst whose useful life is over, sputtering targets that can no longer be used or industrial waste containing precious metals, our network of sites can receive these precious metals and chemicals, both simple and complex, in tradable or usable forms.

Refining is a critical step in the lifecycle of precious metals and the protection of our environment. Without refining, landfills would fill up even more, the availability of precious metals would decrease and prices would grow to uneconomical levels. Heraeus has also developed an eco-friendly, sustainable process so that the byproduct of most of our refining process is used in the water purification industry – significantly reducing landfill waste.

# Recycling & Refining Services



Heraeus is a specialist in the recovery or recycling of all precious metals and the semi-precious metal Rhenium. With several worldwide sites, we have the capacity and capabilities to handle your complex materials.

With our state-of-the-art technologies your valuable materials are pretreated, sampled and refined to ensure high return rates. And our production processes, which are transparent and auditable, can always be witnessed by you or a designated representative.

For over 160 years, Heraeus has earned a global reputation for outstanding quality. When you entrust your precious metals to us for recycling and refining, you can be assured that our work adheres to the highest international standards for quality, product performance and compliance.



# Recycling & Refining





# Recycling & Refining Expertise

From state-of-the-art technology to the industry's most experienced team, Heraeus can recycle and refine your materials containing Platinum Group Metals plus Gold, Silver and the semi-precious metal Rhenium. Our extensive range of services include:

## **Concentrates (from mining and smelting industry)**

- Mining concentrates from Platinum Group Metals (PGM) mines
- PGM concentrates from copper and nickel smelters

## **Secondary Concentrates (from intermediate refiners)**

- Concentrates, precipitates
- Prepared and unprepared sweeps
- Bullions

## **Spent Catalysts (chemical, pharmaceutical & petrochemical industries)**

- Heterogeneous catalysts on various substrates (i.e. carbon, alumina oxide)
- Homogeneous catalysts in different solutions
- Ion exchange resins

## **Alloys (jewelry, dental, magnetic data storage and medical industries)**

- Sputtering targets
- Residues
- Electrodes from implantable devices
- Dental and jewelry alloys and sweeps
- Remelt of bars

## **Industrial Waste (electronics, automotive)**

Production scrap like:

- Crucibles
- Connectors
- Electronic components
- Strips and capacitors
- Pastes, powders
- Surplus materials from production processes

# Sampling: The Precision & Accuracy You Need

Heraeus uses the industry's most sophisticated sampling equipment to help you precisely analyze your valuable material's precious metal content.

Depending on the quantity and material matrix of the incoming material, the appropriate sampling process is chosen. Concentrates are milled and sieved, carrier catalysts are sieved, alloys are melted, homogeneous catalysts are thermal reduced through HeraCycle® or sampled before thermal reduction through HeraSample® and solutions are mixed.

## Analytics: For Better Decision Making

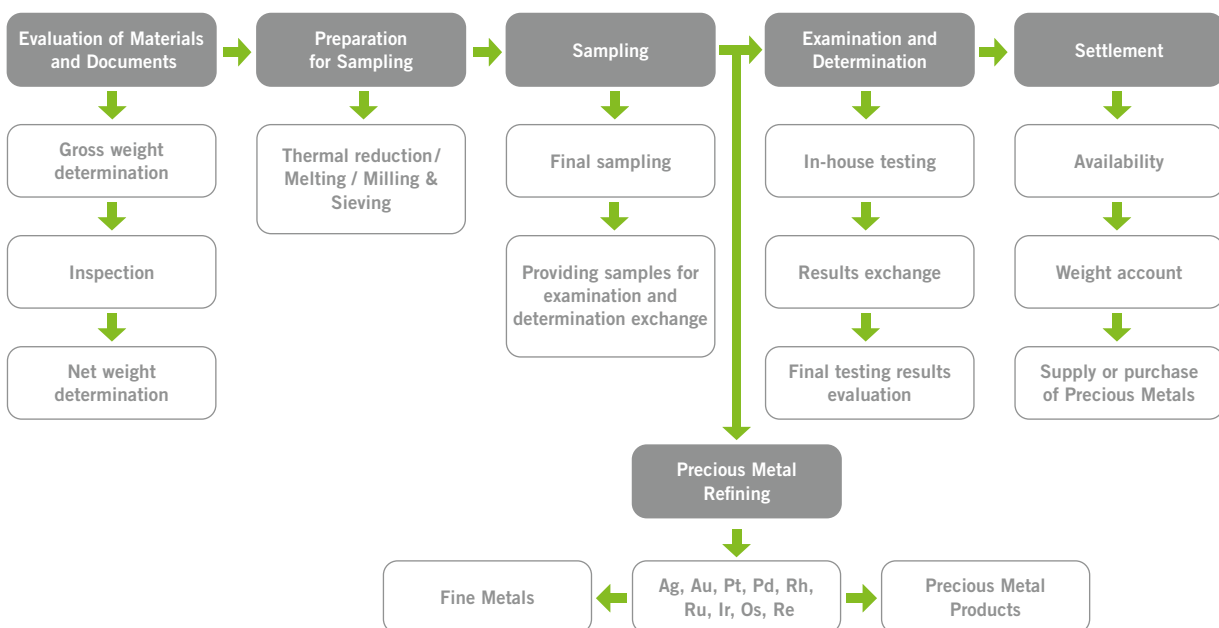
When critical business decisions have to be made about your precious metals, Heraeus can provide you with the insights and information you need. Our Global Competence Center Analytics combines state-of-the-art equipment and a highly qualified team of precious metals scientists to ensure your product tests are conducted quickly, accurately and meet industry standards for quality and materials investigations.



## Our analytics services include:

- Accounting analysis
- Survey analysis
- Purity analysis
- Materials characterization
- Surface analysis

## Precious Metal containing Materials



# Waste Management & Logistics



## Waste Management

Shipments of waste materials containing precious metals are subject to specific local, national and international regulations. Heraeus will provide you with the expert advice and assistance you need to navigate these complex and challenging requirements. Most importantly, our major recycling facilities at Heraeus are authorized sites (Treatment and Storage Facility) for hazardous and non-hazardous materials containing precious metals. This enables us to accept customer material without prior consent by officials in most cases.

## Logistics

Our extensive experience in international door-to-door logistics, transportation and pick-up services ensures your valuable material will be handled correctly and safely. Our experience in waste declaration, organizing permits and surveying local regulations will reduce your logistics costs and save you time.

**Heraeus Precious Metals –  
Your Partner Every Step of the Way!**





# Environmental, Health, Safety, Compliance & Quality



For our customers, Heraeus is their trusted partner that clears the path for environment protection, regulatory compliance and resource conservation. Our stringent supply chain policy ensures sourcing of metals from legitimate and ethical sources. All of our major refining facilities comply with governmental, federal, state and municipal laws and regulations and are ISO 9001 and 14001 certified to Quality and Environmental Management Standards. Most importantly, they are authorized for treatment and storage of hazardous and non-hazardous waste containing precious metals.

Heraeus is active member of all important precious metal associations in the market:

- London Platinum and Palladium Market (LPPM)
- London Bullion Market (LBMA)
- Fachvereinigung Edelmetalle (FVEM)
- International Precious Metals Institute (IPMI)
- European Precious Metals Federation (EPMF)
- International Platinum Group Metals Association (IPA)

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