



Hindustan Platinum



**Nitro
Technologies**

Enriching everyday life
through precious metals!

Since 1961



REFINING SERVICES | CATALYST & CHEMICALS | ELECTRICAL CONTACTS | NITRO TECHNOLOGIES | ENGINEERED PRODUCTS





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About Hindustan Platinum

Established in 1961, Hindustan Platinum is a leading manufacturer and refiner of precious metal products and services that have a wide array of industrial applications. With an impressive legacy spanning over six decades, Hindustan Platinum is a specialist when it comes to refining precious metals and manufacturing precious metal products. We also provide a full spectrum of services that range from technical advisory to metal management.

Our drive for excellence, our perseverance to serve our customers' requirements, and our unflagging effort to build a global brand have enabled us to establish a customer base in over 50 countries across 5 continents. Supporting our global footprint are two subsidiaries in United Arab Emirates (UAE) and Puerto Rico.

- **Hindustan Platinum Private Limited, India**
- **Hindustan Platinum, DMCC, UAE**
- **Hindustan Platinum P.R. LLC, Puerto Rico**

We serve a diverse set of industries such as Oil Refining, Petrochemical, Pharmaceutical, Chemical, Agrochemical, Flavours & Fragrance, Fine & Bulk Chemicals, Fertilizer, Sodium Nitrite/Nitrate, Industrial & Defence, Caprolactam & Cyanide, Mining, Switchgear, Home Appliances, Automobile, Glass, Jewellery, Man-made Fibre, Research and Analytical Laboratories and others.

Over the years, we have honed our in-house capabilities and supply technologically advanced products and services to our clients. Today, our team of over 950 multi-cultural and diversified professionals is dedicated to developing innovative solutions that create value for our customers. The on-going production capacity expansion at our Navi Mumbai plant will further enable us to cater to the growing demand for our products and services across the world. Our manufacturing unit's proximity to major airports and seaports is another strategic advantage that enables us to better serve our global customers.

At Hindustan Platinum, we understand the responsibility of being a manufacturer's manufacturer and are committed to delivering excellence across our portfolio of offerings. We work with our global partners for new product development as well as for process engineering and value engineering projects. Our steady investment in R&D has allowed us to continuously innovate and hone our refining and manufacturing capabilities.

World-wide, we are among a handful of companies to be listed on the London Platinum and Palladium Market's (LPPM) Good Delivery List for Platinum and Palladium and on the London Bullion Market Association's (LBMA) Good Delivery List for Silver.





Businesses We Have

1. Refining Services

At the forefront of all our activities, is refining. At Hindustan Platinum, our state-of-the-art precious metal refining facility, enables us to handle a wide variety of precious metal bearing material.

We have fine-tuned a variety of traditional and cutting-edge high-yield technologies to produce high-purity precious metals.



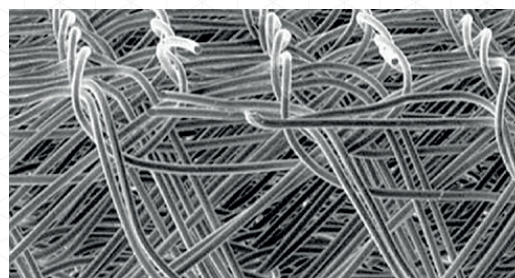
Hindustan Platinum employs stringent quality checks to ensure accurate traceability at all levels of the process. The precious metals content in scrap or spent catalysts received from industries are the main feed stock for the refinery.

Sampling and assaying are key elements of our recovery processes, whereby the precise metal content is determined for each lot of material received. The recovered metal is either returned to the customer, recycled into new products, or credited into a metal account.

In accordance with international standards, we refine and return the metal with a minimum guarantee of 99.95% purity. This can go up to up to 99.99% purity depending on the customer's requirement.

2. Nitro Technologies

Hindustan Platinum started manufacturing platinum alloy catalyst gauzes in 1963 and palladium alloy getter packs in 1985. Our knitting technology has the flexibility to manufacture each catalyst gauze individually. This allows us to offer a smart portfolio of single and multi-structural catalyst gauzes that can be modified according to the customer's desired requirements.



Hindustan Platinum also carries out destructive and non-destructive cleaning of equipment in the ammonia oxidation process downstream to recover precious metals by chemical and water-air based methods. Along with above services, Hindustan Platinum with more than six-decade experience, we also provide its plant advisor services for optimum plant efficiency.





3. Catalyst & Chemicals

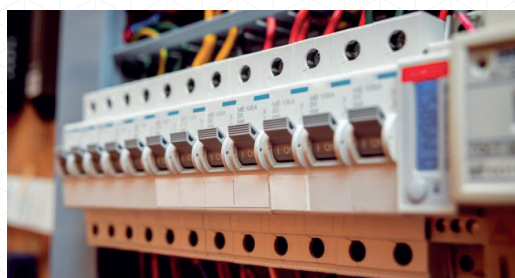
We are a leading manufacturer of precious metal catalysts, owing to their activity, selectivity, and recyclability, play a pivotal role in chemical industries. Our catalysts are abundantly supplied to the API industry and its intermediaries as well as to industries like Agrochemicals, Flavours & Fragrances, and Fine & Bulk Chemicals.



Our experience in manufacturing catalysts, combined with our commitment to meeting the specific requirements of our customers has resulted in technologies that have been perfected into an exact science.

4. Electrical Contacts

Electrical Contacts division has a wide range of contacts for the low and medium voltage industry depending on the circuit, handling currents varying from micro amps to hundreds of amperes.



Our technical expertise coupled with our state-of-the-art manufacturing facilities in **India** and **Puerto Rico** make us the preferred supplier-partner of silver and silver-alloyed electrical contacts for most leading businesses in the switchgear industry across the globe.

5. Engineered Products

We manufacture apparatus that is largely used in laboratories for analytical purposes.

They mainly comprise crucibles, dishes, electrodes, and tongs. These are made from Platinum and its alloy with Gold and PGMs (Platinum Group Metals). We also supply precious metal Spinnerets for man-made industry.



Along with this, Hindustan Platinum manufactures both cladded as well as uncladded platinum group metal stirrers used in the glass industry with is a pioneer in laser technology and supplies high quality bushings to the Glass Fibre Industry.





Industries We Serve

With an ambition to make a big difference to our customers' business, Hindustan Platinum serves a plethora of industries.



A Record Of Excellence

As a supplier of components that form foundational elements of our customers' products and processes, we are aware of our responsibility to adhere to the highest standards of quality. The flexibility to meet customer requirements and the ability to provide reliable products and services are the cornerstones of our business efforts.

We are aware of our commitment to our global partners and customers, our employees, our suppliers, and our environment. We are guided by the latest technologies and are constantly working on developing products that not only meet but surpass mandated quality standards and are energy efficient.

Adopting new technologies as well as continuously reviewing and improving our way of working yields benefits in terms of performance, efficiency, and safety.

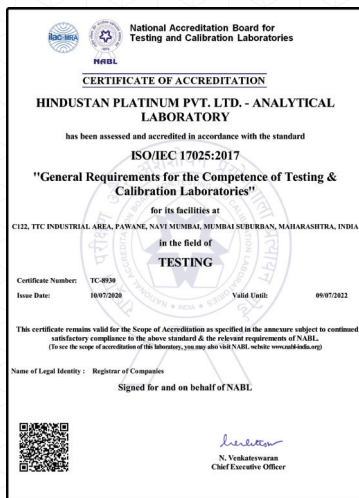




Accreditations and Certifications:

Over six decades, Hindustan Platinum has grown from being a quality precious metals refiner and fabricator to a comprehensive solution provider. In our unceasing endeavour to innovate, we have invested deeply in R&D to enhance our refining, manufacturing, and analytical capabilities.

1. NABL



Our Analytical Testing Laboratory has been recognised as NABL Accredited Testing Laboratory vide Certificate Number TC-8930. This accreditation enables us to issue test certificates with ILAC MRA Mark for high-purity Platinum, Palladium, Gold and Silver.

#1 NABL - National Accreditation Board for Testing and Calibration Laboratories, is a Constituent Board of Quality Council of India. ILAC MRA Mark is registered as a worldwide mark and is owned by the International Laboratory Accreditation Cooperation (ILAC).

2. London Good Delivery

Our Navi Mumbai refinery is among a select list of refiners on the London Platinum and Palladium Market (LPPM) Good Delivery list for Platinum and Palladium and on the London Bullion Market Association (LBMA) Good Delivery list for Silver.





3. ISO Accreditations

All Businesses

Bureau Veritas Certification



Hindustan Platinum Pvt. Ltd.
हिंदुस्तान प्लैटिनम प्रायवेट लिमिटेड

Corporate Office
VIOS Tower, 22nd Floor, New Cuffe Parade, Off Eastern Freeway,
Wadala, Mumbai - 400 037, India.

Manufacturing Plant
C 122, TTC Industrial Area, Pawane, Navi Mumbai - 400 703, India.

This is a multi-site certificate, additional site(s) are listed on the next page(s)

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above Organisation has been audited and found to be in accordance with the requirements of the Management System Standard detailed below.

Standard
ISO 9001:2015

Scope of certification

Refiners and manufacturers of precious metal products made of Ruthenium, Rhodium, Palladium, Silver, Iridium, Platinum, Gold and its alloy and services for industrial applications

- Refining and recovery of precious metals from spent of various chemical and industrial applications
- Develop, manufacture and sale of precious metals based heterogeneous & homogeneous catalysts, salts and their solutions for diverse chemical applications
- Manufacture and sale of precious metals based engineered products mainly spinnerettes, cup, cluster holder, bushing, thimbles, granules, rings, bars, etc.
- Design, manufacture and supply of platinum gauzes, getter and supporting screens
- Design, manufacture and sale of electrical contacts like solid & bimetal rivets, profile contacts, brazing foils, contact assemblies, wires and strips

Original cycle start date: 06 July 2010
Expiry date of previous cycle: 18 December 2022
Recertification Audit date: 23 January 2023
Recertification cycle start date: 03 May 2023

Subject to the continued satisfactory operation of the Organisation's Management System, this certificate is valid until: 18 December 2025

Certificate No. IND.23.5096/QM/U Version: 1 Issue date: 03 May 2023

For certificate authenticity, click here <https://certcheck.ukas.com/>

ISO 9001 IN043326

Signed on behalf of BVCH SAS UK Branch
Jagdishesh H RAMBAH
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

Certification body address: 8th Floor, 88 Prescot Street, London, E1 8HS, United Kingdom

Local office: Bureau Veritas (India) Private Limited (Certification Business)
72 Business Park, Marol Industrial Area, MIDC Cross Road 1st,
Andheri (East), Mumbai - 400 003, India

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Bureau Veritas Certification



Hindustan Platinum Pvt. Ltd.
हिंदुस्तान प्लैटिनम प्रायवेट लिमिटेड

Standard
ISO 9001:2015

Scope of certification

SITE	ADDRESS	SCOPE
Corporate Office	VIOS Tower, 22nd Floor, New Cuffe Parade, Off Eastern Freeway, Wadala, Mumbai - 400 037, India	Procurement, Sales and Services of following businesses - Refining Services - Chemical and Catalyst - Nitro Technologies - Engineered Products - Electrical Contacts and R & D of Nitro Technologies
Refining Services Unit	C 122, TTC Industrial Area, Pawane, Navi Mumbai - 400703, India	Refining and recovery (Reclamation) of precious metals from spent catalyst / chemical from various industries (Mainly from Pharma, Petrochemical, Agro, Specialty chemicals, Mining and Jewellery etc.)
Catalyst & Chemical Division	C 122, TTC Industrial Area, Pawane, Navi Mumbai - 400703, India	Develop and manufacture of Catalysts (Heterogeneous and Homogeneous), Salts and Salts Solutions of various industrial applications.
Precious Metal Engineered Products	C 122, TTC Industrial Area, Pawane, Navi Mumbai - 400703, India	Manufacture and Sale of precious metals based engineered products mainly spinnerettes, cups, cluster holder, bushing, thimble, granules, rings, bars etc.
Nitro Technologies	C 122, TTC Industrial Area, Pawane, Navi Mumbai - 400703, India	Design, manufacture and supply of: 1. Platinum alloy catalyst gauzes / systems 2. Palladium alloy getter / catchment 3. Gauzes (systems supporting) / separator screens
Electrical Contact Division	C 122(C-154) TTC Industrial Area, Pawane, Navi Mumbai - 400703, India	Design, manufacture and sale of silver and silver alloy: 1. Solid and bimetal rivets 2. Profile contacts 3. Contacts on carriers 4. Wires 5. Brazing foils and wires

Certificate No. IND.23.5096/QM/U Version: 1 Issue date: 03 May 2023

For certificate authenticity, click here <https://certcheck.ukas.com/>

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Signed on behalf of BVCH SAS UK Branch
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Andheri (East), Mumbai - 400 003, India

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We are committed to create value for our customers





Our Precious Metal Management & Refining Services

Certain measures must be adopted to successfully manufacture high-quality precious metals-based products. At Hindustan Platinum, we understand that the production of the necessary starting material and intermediate products from the recovered materials of the spent products are an absolute necessity.



Precious Metals Refining

Hindustan Platinum operates one of the world's most modern precious metals recycling facilities. The precious metals refining provides for comprehensive refining services for catalyst and getter gauze scrap, glass wool filters, precious metals containing dust and sludge from downstream equipment of the ammonia oxidation reactor and storage tank cleaning operations.

Precious Metals Management

Hindustan Platinum has extensive experience in manufacturing precious metals products and providing related services, offering our customers the industry's most inclusive array of services for the entire precious metal lifecycle.



Whether its Gold, Silver, Platinum, or Palladium, our specialists create tailor-made solutions for our customers within the scope of customary price-hedging instruments such as outright buy and sell orders and working of limit orders.

We can provide metals in the form of bars, grains, or sponge, at most locations worldwide. We can also arrange for unallocated metal credit and loco swaps as required.

Hindustan Platinum's Navi Mumbai refinery is on the London Platinum and Palladium Market (LPPM) Good Delivery list for Platinum and Palladium and on the London Bullion Market Association (LBMA) Good Delivery List for Silver. As a result, bars manufactured by us are readily accepted by bullion banks and commodity exchanges around the world.





Nitro Technologies – Introduction

Hindustan Platinum's Nitro Technologies Business unit is one of the oldest and major product segments that was established in 1963. This business started with the production of catalyst gauzes for nitric acid and hydrocyanic acid industry.

Over the years, Hindustan Platinum's Nitro Technologies business deliberately chose to invest inter alia in the knitting technology known for its distinct advantages. It allows true tailoring of the catalyst system with variable knitting designs and patterns to match the requirements of our customer's catalysed ammonia oxidation processes.

The introduction of knitting technology for catalyst manufacturing marked the advent of Hindustan Platinum's gauze business on a global platform.

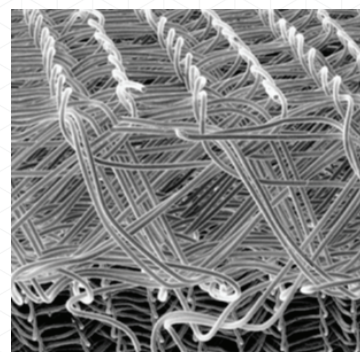
With the experience of more than half a century serving across various plants, it has helped us to drive the business to continuously improve and shape the direction of the technological advancement.

Our Portfolio of Products and Services

Our Products

1. Flat Knitting Technology

To support the changeover at the user end from the woven technology, Hindustan Platinum's nitro technologies division deliberately chose to invest inter alia in the "flat knitting" technology known for its distinct advantages. It allows true tailoring of the catalyst system with variable knitting designs and patterns to match the requirements of our customer's catalyzed ammonia oxidation processes.



The innovative technology connects weft knit fabrics with the traditional characteristics of warp knit, woven and braided fabrics in both – two and three dimensions.

New technical application opportunities are created, where a knit fabric solution combines form and functionality in one piece. With the flat knitting technology, individual and custom designed products are manufactured in single part production.

Despite the single part production, the flat knitting technology facilitates the reduction of working processes resulting in quicker production times while using minimum material. This inevitably leads to quicker and timely deliveries to our customers.



2. Our Catalyst For Ammonia Oxidation

The flat knitting technology enables us to knit design patterns in both two and three dimensions.

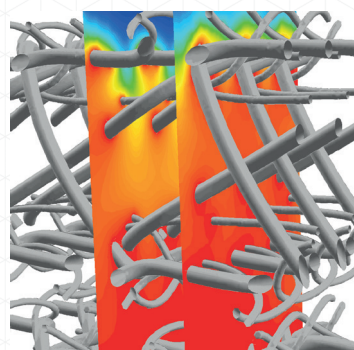
The knitted structure is essentially relevant since each catalyst gauze layer is exposed to variable operating conditions inside the reactor. When passing through the catalyst gauze pack, the ammonia content in the process gas decreases, while the reaction temperature increases. In addition, other parameters like, the operating pressure, ammonia ratio, feed gas temperature, gauze or the process temperature and the loading of the catalyst vary considerably in the individual processes.

The structure of the catalyst gauze and its wire gauge determines the ammonia conversion, the gauze performance in terms of desired product selectivity, catalyst aging and the primary burn-off loss of noble metals.

Our knitting technology allows us to optimize the designing of the catalyst system for every unique process plant condition of our customers.

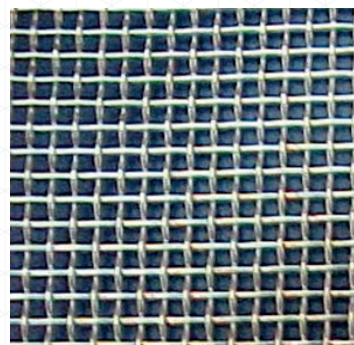


Three-dimensional catalyst gauzes have the advantage of an alternating spatial arrangement of the wires and thus are characterized in a more homogeneous ammonia conversion behaviour as well as higher temperature resistance



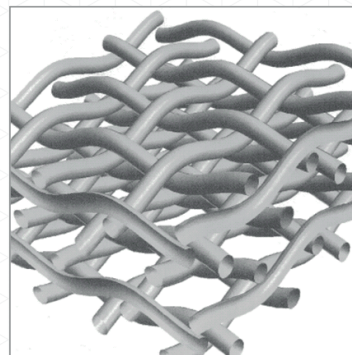
3. Our Getter System For Platinum & Rhodium Recovery

For decades, not much has changed in the structure and the alloy of getter gauzes. They consist of a close-woven fabric made of 95% palladium and 5% nickel alloy. This is surprising, since the getter gauzes recover a great part of platinum and rhodium losses from the catalyst and thus, have the potential to provide a significant contribution to the economics of the overall process.



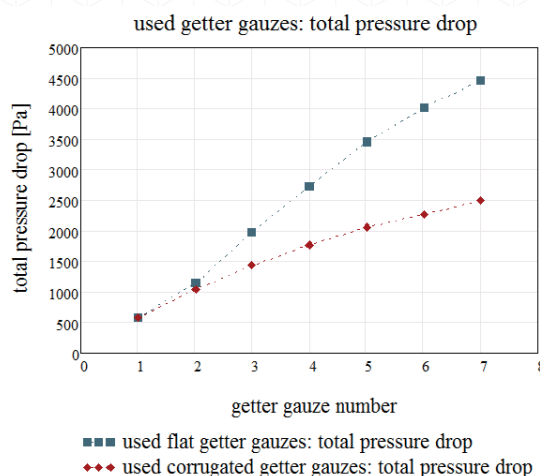
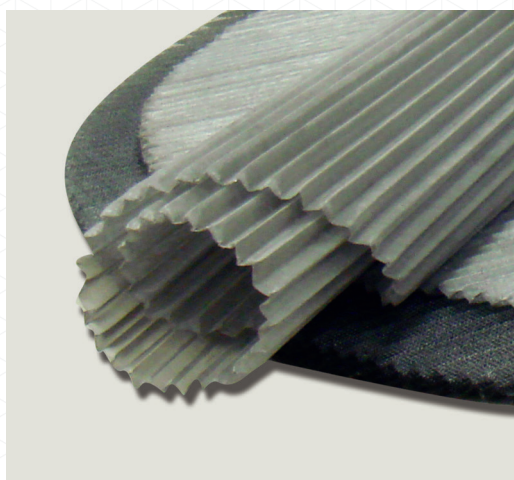
The lack of interest in technological development in the getter system can be traced back to the parallel occurring palladium losses, which reduce the efficiency of the getter system significantly. We have understood the nuances in this technological challenge and have focused our efforts on improving and shaping the future of the getter gauze technology.

The use of specific wire thickness and the choice of specific weights of the individual layers of the getter system enable us to achieve significantly higher platinum and palladium recovery rates with reduced palladium loadings. We have channalised our efforts towards the reduction of the palladium losses that critically affect the getter efficiency.

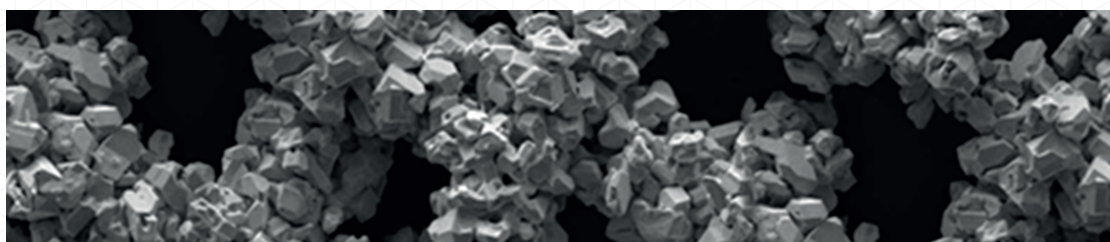


4. Our Corrugated Getter System

Especially with higher primary burn-off losses, that are mostly associated with the high pressure plants, an important aspect with the application and efficiency of the getter system can be attributed to the close-woven structure that increasingly becomes obstructed through the alloying of platinum and rhodium and their re-crystallization with palladium.



Flat getter systems in high pressure plants suffer a relatively high pressure drop. For such operating conditions, our corrugated getter gauzes are recommended, which not only help significantly lower the pressure drop due to the specific corrugated (serrated) structure of the getter system, but also provides a much larger surface area for efficient and optimum precious metal recovery.





Our Services

The environmental condition of each and every customer's process determines the performance of the catalyst and the process yield.

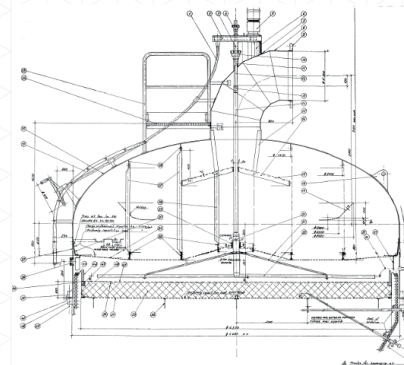
These range from the quality of the filtration of air and ammonia to the extent of the fluctuations in the process control. The start-up procedure affects the development of an active and selective catalyst surface and thus the process yield of the entire campaign.

Impurities cause a segregation of platinum and rhodium, which results in rapid aging of the catalyst and an increase in precious metal losses.

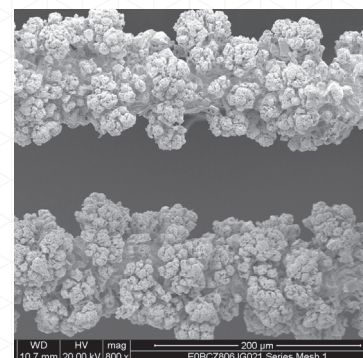
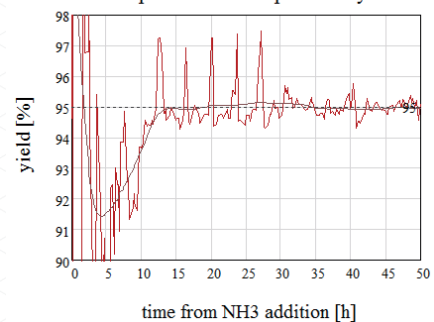
A control mechanism that regulates the ammonia ratio not optimally matched to the mixed gas temperature prevents high yields. Each process is characterized by a variety of factors that have a direct impact on the performance of the catalyst and its precious metal losses. To recognize these factors and thus optimize the performance of the catalyst we have integrated our products and services in a combined product-service system.

These include the evaluation of the start-up procedure, fault analysis and troubleshooting, assessment of the control mechanism as well as process modelling and process simulation. The findings from these process analysis and evaluation allow our customers to optimize their processes and maximize the performance of the catalyst for highest process yields.

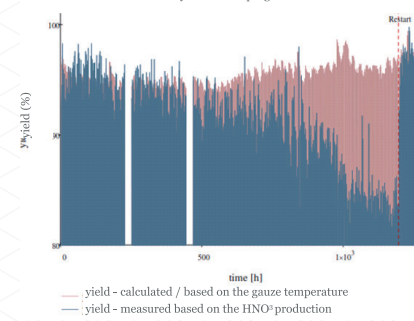
The Product-Services System consists of modular configurable applications of products and services that are tailored to the individual requirements of our customer's plant processes and provides for a continuous and sustainable improvement and optimization of the overall plant performance.



start-up: timed development of yield



yield - curve progression





Plant Cleaning & Plant Advisory

Plant Cleaning:

1. Destructive Cleaning

Since 1997, Hindustan Platinum has been carrying out destructive cleaning of plant equipment to recover precious metals to give maximum metal value credit to its customers.

Hindustan Platinum's integrated plant facilitates the maximum recovery of the precious metals and provides utmost satisfaction to its customers who depend on our analysis and metal account statement.



Destructive cleaning is a step-by-step process of dismantling and re-sizing the plant in which the flame cutting equipment is involved. All the pieces are chemically treated with liquids to remove 100% of PGM oxides from the steel.

2. Non-Destructive Cleaning

Hindustan Platinum's non-destructive cleaning technology uses process to recover maximum precious metals by water-air based/ chemical/ mechanical methods without affecting the residual life of the equipment.

Non-destructive cleaning has dual benefits to customers:

- Improve efficiency of heat exchangers.
- Derive maximum value from recovered precious metals.

We work in close cooperation with our customers. After carefully studying the plant design and operating parameters, we employ customized and optimal cleaning solutions using plant specific equipment, be it mechanical/ chemical-free based cleaning.

It is important to note that we employ environmentally friendly cleaning techniques that cause minimal effect on our ecology.



Plant Advisory:



The Nitro Technologies department determines the performance of the catalyst and the process yield by assessing the environmental condition of every customer's process. This also includes the quality of the filtration of air and ammonia, or even the fluctuations in the process control.

The product installation and start-up procedures affect the development of an active and selective catalyst surface and thus the process yield of the entire campaign. Impurities cause a segregation of Platinum and Rhodium in a variety of phenomena depending upon the contaminant, which results in rapid aging of the catalyst and an increase in precious metal losses. A control mechanism that regulates the ammonia ratio not optimally matched to the mixed gas temperature prevents high yields. Each process is characterized by a variety of factors that have a direct impact on the performance of the catalyst and its precious metal losses. To recognize these factors and thus optimize the performance of the catalyst, our products and services are integrated. A combined product-service package system covers the evaluation of the product installation procedure, start-up procedure, process/ product modelling and simulation, fault analysis and troubleshooting, and assessment of the control parameters.





Our Commitments

Employees' Health and Safety

At Hindustan Platinum, managing health, safety, and enterprise risk is a core responsibility.

As a Member of the British Safety Council, Hindustan Platinum has pledged to keeping people safe and healthy at work. We have always strived to integrate health, safety, and risk management in our corporate strategies, business practices, workplace culture, and employee behaviour. We see adherence to health and safety norms as a leading indicator of our overall business and operational performance





Responsible. Sustainable

Hindustan Platinum is more than just a business. It is a socially responsible business committed to positively impacting the environment and community. We believe that the world belongs to every living being. It is our duty to protect and nourish it for future generations.

One of the key elements of our Mission statement is "Protecting the environment and community by striving for zero waste". We have pledged to implement sustainable business practices by embracing clean energy

We consistently work towards developing and adopting solutions that are better for our planet. Over time, our constant efforts have brought us closer to our goals of becoming energy-positive and achieving zero-waste across our business units. Through investments in wind farms and solar parks, we generate more energy than we consume. In addition to meeting strict environmental regulations our R&D team strives endlessly to improve processes, with a particular focus on increasing water and energy conservation.

Our commitment to clean energy and zero waste can be seen in our fully integrated effluent treatment plant, root zone system, rainwater harvesting facility, organic waste converter as well as stringent air-quality control and waste liquid neutralization processes.

We are dedicated to the social wellbeing of the community, especially the development of weaker and under privileged sections of the society. Various initiatives by Hindustan Platinum and its associate foundation - Choksi Charity Foundation focus on health care and sanitization, education, women's empowerment, building facilities for senior citizens, environmental sustainability, promotion and protection of art & culture, sports, rural development, and disaster relief.





**Nitro Technologies
knitting the story of success**





Hindustan Platinum

Hindustan Platinum Pvt. Ltd.

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