

# MANUFACTURED CAPITAL

## APPROACH AND STRUCTURE

Northam's business is focussed in the mining, processing and marketing of PGMs and its associated by-products to a long-standing and stable customer base in the major economic centres of the world.

PGMs are used in a wide range of applications which contribute to human health and wellbeing. They also provide various environmental health benefits. Northam's strategic intent in terms of refining, distributing and selling its product is to maintain its positioning in the global marketplace as a reliable independent and competitive supplier of high-quality refined PGMs.

The company has long-standing relationships with its customer base and values mutually beneficial interaction with its customers, and endeavours to nurture and maintain its lasting relationships.

## OPERATIONS

At the company's Zondereinde mine, Northam exploits two reefs – the Merensky and UG2 reefs – via a twin shaft system at depths varying between 1 294 and 2 115 metres below surface. Mining activities are driven by hydropowered equipment, a technological innovation pioneered by Northam, and which has now become common practice in deep-level mines.

Northam's second operation, the Booyssendal UG2 North mine – which currently only exploits the UG2 reef is an underground bord and pillar mine, accessed from surface via a ramp decline system comprising three declines on the plane of reef and one situated 20m into the footwall of the reef, containing a belt for ore handling. Strike belts transport the ore to the central decline system, through an ore pass system to the footwall belt for transport to a UG2 concentrator plant on surface.

Merensky and UG2 ores at Zondereinde are processed in two separate concentrator plants which are designed to treat different ore types. The concentrate from both are blended in slurry form. UG2 ore at Booyssendal is treated at the on-site UG2 concentrator plant and is transported to the Zondereinde metallurgical complex.

Drying takes place at the Zondereinde furnace prior to smelting. From the smelting process, granulated converter matte is fed to the base metals removal (BMR) plant. In the BMR, nickel (Ni) and copper metals (Cu) are removed as crystalline nickel sulphate and copper cathode which are transported directly to local consumers for further beneficiation.

The remaining PGM solutions are filtered and dried to produce a final concentrate, which is weighed and drummed and prepared for shipment to the Heraeus refinery in Hanau, Germany. At Hanau, the platinum and palladium are partially refined and transported back to Heraeus SA for final refining. The product produced in South Africa is guaranteed to be of London-Zurich 'Good Delivery' status at a minimum purity level of 99.95%, the other PGMs are refined in Hanau. Northam then sells its high purity refined metal, including platinum, palladium, rhodium, ruthenium, iridium, gold and silver to contractual customers in the major economic centres of the world, Europe, North America and Japan. A proportion of Northam's refined metal is sold within South Africa.

## PRECIOUS METALS REFINING

Since 1992, in terms of a long-standing partnership, all of Zondereinde's PGM concentrate has been toll-refined under contract with Heraeus of Germany. The concentrate is delivered on a weekly basis to the Heraeus refinery in Hanau. Heraeus is a registered member of the London Platinum and Palladium

Market (LPPM) and is therefore required to produce metal of London-Zurich Good Delivery status.

More recently, in conjunction with Northam and in order to facilitate downstream beneficiation opportunities, Heraeus and Northam jointly initiated a three-phase refinery construction and expansion programme in Port Elizabeth, South Africa. The first phase of the Heraeus Refinery South Africa (HRSA), commissioned in February 2007, treats all of Zondereinde's platinum and palladium production.

In terms of Northam's precious metals refining arrangements, final PGM concentrate is transported from the Zondereinde metallurgical complex to Johannesburg, from where it is flown on commercial airlines to Germany and then delivered to the Heraeus refinery.

Strict guidelines set out by the international aviation authorities regulate the conditions and terms of product transportation. At the same time, the Hanau refinery is subject to strict European Union and materials handling protocols.

Platinum and palladium are partially refined in Hanau and then air freighted as intermediate products to the fine metal refinery (FMR) in Port Elizabeth for final refining. Northam then sells the product to its global customers. Rhodium, gold, silver, ruthenium and iridium are toll-refined at Hanau, and returned to Northam's account for international sale and distribution.

The final refined products, which are transported to customers around the world, take the form of refined metal sponge, ingots and powders. These are packaged and transported in accordance with international standards and each numbered lot of metal to consumers is accompanied by a unique Certificate of Assay as issued by the Heraeus refinery,

with material safety data sheets made available to customers and transporters when appropriate.

### OUR CUSTOMERS

Northam's marketing department maintains regular weekly contact with its domestic and international customers, and hosts customer meetings and undertakes visits to customer facilities. Customer representatives undertake reciprocal visits to Northam's mining and metallurgical operations. Any issues relating to customer satisfaction are directly taken up with the marketing department and proactively addressed. In this way, problems arising can be timeously and satisfactorily resolved, and customer feedback can be addressed immediately.

Due to the nature of Northam's long-standing relationships, frequent face-to-face interaction with its customers and proactive redress of any issues arising, additional customer satisfaction surveys are not required.

As the sale of Northam's products is largely conducted on a business-to-business basis for industrial applications, no definitive codes are followed for the purposes of marketing communications, promotions and sponsorships. As a result, no incidents of non-compliance with regulations or voluntary codes concerning marketing communication, advertising or promotion on sponsorship were reported during F2013.

### HEALTH AND SAFETY IMPACTS

All health and safety impacts of the final product in the various stages of the life cycle have been assessed and efforts are made on a continual basis to address health and safety issues which relate to final product.

In terms of customer health and safety, there are no material health and safety complications related to the final products produced and sold

by Northam, with the exception of nickel sulphate which is managed as a hazardous material and is accompanied by relevant safety and health documentation. There were no incidents of non-compliance with voluntary codes concerning the health and safety of products and services in F2013.

## PRODUCT AND SERVICE INFORMATION AND LABELLING

There are currently no safety, health or environmental labelling requirements for pure PGMs. Labelling requirements do exist for the base metal by-products which enter Northam's marketing and sales stream. In particular, strict requirements exist for the transportation and distribution of nickel sulphate. This substance is transported as hazardous material and is accompanied by the appropriate coding and labelling along with the relevant safety data sheets for the information of transporters, handlers and customers.

Northam is a regulated agent, compliant with the South African Civil Aviation Authority's regulations

which legislate the terms under which the company's products are exported. All containers which hold the company's product during the exportation process from mine-to-market, are accompanied by documentation which validates the contents of each shipment.

No incidents were reported in respect of non-compliance with regulations and voluntary codes concerning product and service information and labelling.

## CUSTOMER PRIVACY AND CONFIDENTIALITY

Northam respects the privacy of its customers and, to this end, confidentiality agreements and non-disclosure undertakings are standard in its customer contracts. No complaints, substantiated or otherwise, regarding breaches of customer privacy and losses of customer data occurred during the year under review. During F2013, no fines were received in respect of non-compliance in the process of the provision and use of Northam's product.



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