

SMELTER OPENING:

15 FEBRUARY 2018

NORTHAM PROCESSING AND REFINING

Northam's processing and refining capability presents a significant strategic advantage for the group. The commissioning of the new furnace is a key step in delivering on this initiative.



KEY FACTS AND FIGURES – SMELTER EXPANSION

- Smelter expansion began in February 2016
- Project completed in December 2017
- October 2015 agreement with Heraeus to invest €20 million in Northam smelting capacity
- Furnace commissioned in December 2017
- Northam smelting capacity expanded by 20MW to 35MW
- Processing capacity for >1Moz
- Toll refining agreement with Heraeus extended for 20 years

NORTHAM AND HERAEUS: A LONG-STANDING, VALUED PARTNERSHIP

The Northam-Heraeus partnership dates back to the inception of the Zondereinde mine, and the establishment of the Northam company in the late 1980s. For Northam this relationship of some 30 years has underpinned much of the company's development and progress, not least of all the development of infrastructure and creation of employment in what was, at the time, a remote and underdeveloped part of the country. The Heraeus refinery in Port Elizabeth in 2007 marked a further strengthening of this longstanding partnership and added to the refining capacity required for the Northam group's expansion.

In 2015 the partnership was enhanced with the extension of the co-operation agreement with Heraeus to expand Northam's smelting capacity with the injection of €20 million towards the construction of a second furnace.

Heraeus



Zondereinde's Merensky and UG2 ore is processed in two separate concentrator plants which produce flotation concentrate for delivery to the smelter complex where it is filtered and dried. From the smelter the concentrate is pneumatically charged to the furnace.

The original smelter at the Zondereinde metallurgical complex dates back to 1993. Prior to the expansion its capacity measured 15MW.

PGM-containing furnace matte is tapped from the furnace and sent to the converter for the removal of iron. Once this step has been completed the PGM-containing matte from the converter is quenched with water and bagged, before being transported to the BMR, or base metals removal plant.

Within the BMR nickel (Ni) and copper metals (Cu) are removed through chemical processes in the form of crystalline nickel sulphate and copper cathode.

The remaining PGM solutions are filtered and dried to produce a final concentrate ready for shipment to the Heraeus refineries located in Hanau (Germany) and Port Elizabeth (South Africa), where individual precious metals are toll-refined to final metal purity of 99.95%.

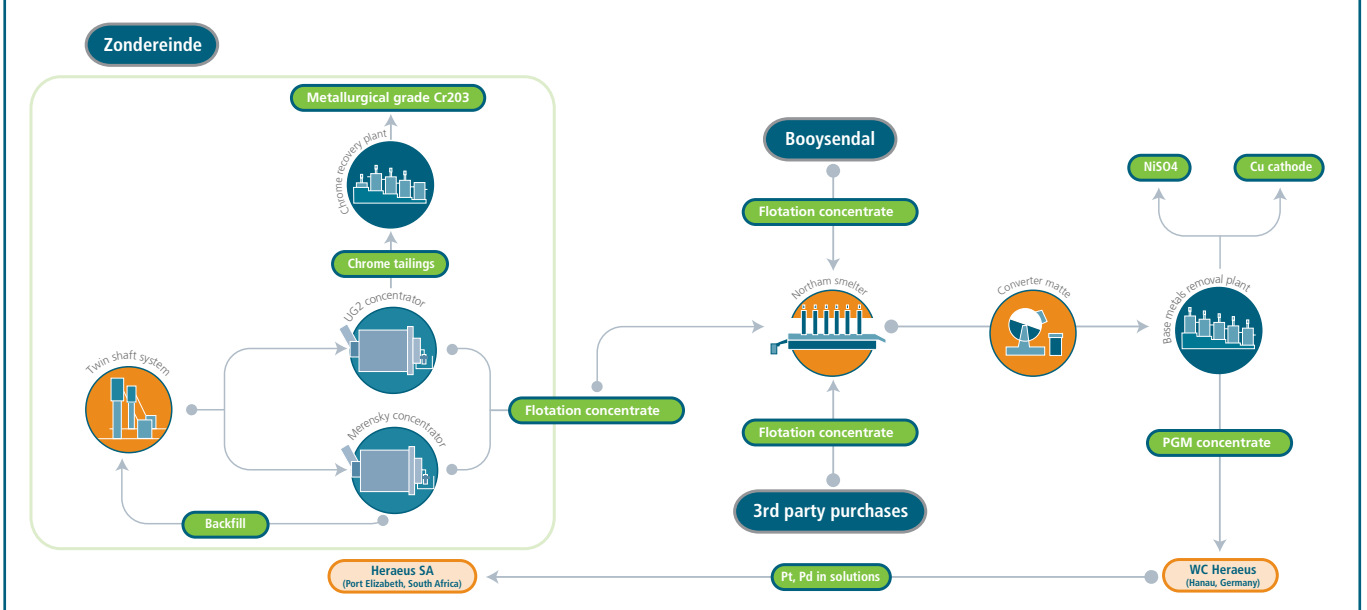
Northam sells refined metal to contractual metal customers at various global destinations.

The smelter at Zondereinde has for years treated the single source mine production. Spare capacity was used to treat both third party concentrate and that from the newer Booyensdal operations. With growing output from the Booyensdal complex, and the prospect of Eland being recommissioned, the new furnace is able to accommodate the higher volumes already emanating from the mining growth.

The new furnace incorporates a number of advances in the area of PGM smelting. These include extended refractory lining life expectancy, metal containment and cooling, along with best practice in terms of monitoring, tapping and furnace control functions.



METALLURGICAL FLOW CHART



FOR FURTHER INFORMATION CONTACT:

Leon van Schalkwyk

Tel: +27 11 759 6000 Email: Leon.VanSchalkwyk@norplats.co.za

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