

Chrome recovery plant launched at Amandelbult

Anglo American Platinum launched a chrome recovery plant at its Amandelbult Complex in Limpopo Province in early February. The new facility, which represents an investment of R474 million, has the capacity to produce up to 700 000 t/a of commercial grade chromite concentrate. It is expected to reach steady-state production by the end of H1 2017.

The plant – the ‘Automatic Chrome Recovery Plant’, to give it its full name – was commissioned in the second half of 2016 and is owned and operated by Anglo American Platinum’s wholly owned subsidiary, Rustenburg Platinum Mines, with a 74 % stake, and Baphalane Siyanda Chrome Company (BSCC) with a 26 % shareholding. The Baphalane Ba Mantserre community that surrounds the Tumela and Dishaba mines within the Amandelbult complex owns 75 % of the share capital of BSCC, with the remainder owned by Siyanda Resources and Mega Chrome Management as technical partners.

A feasibility study for the plant was completed in 2013 with approval for the project being given the following year. Construction of the plant was undertaken by Johannesburg-based LogiMan on an EPC basis with work on site starting in April 2014. Equipment suppliers included Multotec (spirals) and JB Switchgear



Solutions (motor control centres and variable speed drives).

The plant has two modules, each employing a multi-stage configuration of separators and spirals. It produces two final chromite concentrates, one a metallurgical grade concentrate and the other a chemical grade. The chrome content of the concentrates is approximately 42 %. The two concentrates are pumped to their respective stockpile areas via their own dewatering separators. At the stockpile facility, the chromite is loaded onto trucks (for delivery to domestic customers) or rail wagons (for delivery to international customers via Richards Bay).

Talking to members of the media at the launch, Etienne Espag, General Manager Projects at Anglo American Platinum, said the plant allows recovery of the chromite in the UG2 slurry generated by the two UG2 concentrator plants at Amandelbult.

“The practice of recovering the chromite in the UG2 ore is now more common in the platinum mining industry so we are certainly not pioneering the technology included in this new facility,” he said. “The technology being used is well established. The plant, however, is certainly one of the biggest in the country – it has 300 spirals – and incorporates the latest in management and control technology.”

The chrome-silica cyclone underflow from the two UG2 plants serves as the dedicated feed stream to the chrome recovery plant and is pumped to two agitated feed surge tanks. From the surge tanks the slurry is delivered to desliming/separator cyclones located prior to the spirals circuit. The cyclone underflow then reports to the spirals circuit by gravity feeding. The spiral nests have been arranged to ensure optimum and equal feed distribution between all individual spirals starts. Where possible, the various stages of rougher, cleaner and recleaner spirals are stacked vertically above one another to maximise gravity feed arrangements to each section.

The plant has provided approximately 110 new permanent jobs, with roughly 75 % of them being filled by people living in the Thabazimbi



area and, in particular, the Baphalane Ba Mantserre community.

Commenting at the launch, Anglo American Platinum’s Chief Executive Officer, Chris Griffith, said: “The joint venture with the Baphalane Ba Mantserre community is directly in line with Anglo American Platinum’s strategy of empowering surrounding communities through value-generating transactions. This transaction will create long-term, sustainable empowerment and aligns with our strategy of identifying capital-light projects to generate further value from existing assets.”

Siyanda Resources Chairperson Lindani Mthwa added: “We bring our proven expertise in chrome extraction to this exciting new venture. We are proud to partner with Anglo American Platinum and the community of Mantserre. We believe that this partnership has all the ingredients to succeed now and into the future.”

The Amandelbult complex consists of the two underground mines, Tumela and Dishaba, as well three concentrators, and is located 25 km south of the town of Thabazimbi. The current working mine infrastructure has five vertical and seven decline shaft systems and both the Merensky and UG2 reef horizons are mined. The complex provides employment for roughly 15 000 people (including contractors) and in 2015 produced 437 000 platinum ounces.

Photos (unless otherwise acknowledged) courtesy of Anglo American Platinum

Above: The stockpile area with chromite concentrate in the foreground (photo: Arthur Tassell).

Left: The new chrome recovery plant at Amandelbult. It has been designed to produce up to 700 000 t/a of commercial grade chromite concentrate.

Seen here at the launch of the chrome plant are (from left to right, on the right of the photo) William Taylor, General Manager, Amandelbult Complex; Seaparo Sekoati, MEC for Economic Development, Environment and Tourism, Limpopo Provincial Government; and Gary Humphries, Executive Head, Process at Anglo American Platinum.

