

MINING

REVIEW AFRICA



**DELIVERING WORLD-CLASS
MINERALS PROCESSING
SOLUTIONS** P4

**DRC'S
HOTTEST
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“The key for us now is thinking beyond cobalt and just mineral extraction and to focus on the full suite of minerals and commodities in the battery value chain.”

Gillian Davidson, Global Battery Alliance & Eurasian Resources Group

**Critical metals
revolution**

Consulmet has completed the construction of a unique 5tph Dense Media Separation test plant at its facilities



Consulmet

Exemplary in delivering world-class minerals processing solutions

Whether it be big or small, specialist engineering company, **Consulmet**, is fully committed to delivering minerals processing plants of the highest quality. It is this approach that has brought the company significant success throughout Africa, including the Democratic Republic of Congo (DRC). Recently, it launched a pilot test plant at its headquarters in Johannesburg, further testament to its pursuit of minerals processing excellence. Compiled by **GERARD PETER**.

Client requirements for dense medium separation (DMS) have been shifting towards preconcentration and fine ore beneficiation.

This has resulted in a push to beneficiate material with lower bottom cut-off sizes than was previously considered the norm in the industry.

Treating fine-size fractions presents additional challenges, especially to ferrosilicon consumption, a costly expense for DMS operators. Also, with the varying nature of different ore bodies there is a need for proof of concept when using DMS processing in these applications.

As a result, in March this year, Consulmet successfully commissioned its unique five-ton-per-hour Dense Media Separation (DMS) test plant at its facilities in Modderfontein, Johannesburg. MD, Derek Lahee explains that one of the company's

core strengths is in the area of gravity separation of minerals using dense medium separation (DMS), and historically the company would outsource bulk DMS test work to various third-party test facilities.

"What we found was that the processes used by these facilities did not always meet our requirements or have the ability to deliver the bulk testing results we were looking for. Bringing this commercial facility in-house complements our business and allows us to deliver real, DMS plant results to our clients," says Lahee.

The DMS test plant with feed preparation and water reticulation allows for closed circuit DMS beneficiation of bulk samples, in batch, under real operating conditions. Samples taken during these pilot runs will be sent away for densitometric analytics. Process variables are captured and used for production plant

design, thus reducing project risk and process uncertainty.

"This project is massively beneficial to clients, both locally and globally. The veracity of the results from the DMS test plant are extremely important, as large capital investment typically follows on from this, and by installing this test DMS plant we are confident that we will cultivate the trust of clients for their next step," explains Lahee.

Lahee explains that the design principles used in this plant are very flexible and allow for a wider range of commodity testing – which is a first for not only South Africa but Africa. He adds that the project is a true representation of a full-scale plant, as the design of the plant, the test work, and the results can immediately be replicated in a larger plant.

Since the recent completion of the project, Consulmet has seen huge interest from clients across the world,

including from countries like Nigeria, Finland, Turkey, Kosovo, and Australia. Lahee explains that testing services will be offered to clients on a commercial basis, with the company charging a base rate per tonne to cover the consumable costs.

A solid footprint in Africa

Over the years Consulmet's reputation as an innovative and quality minerals processing plant specialist has grown significantly. Proof of this can be found in the number of projects it has delivered on. This includes completing one of its most challenging projects to date in October 2022.

This comprised developing a super high dense medium separation (SHDMS) plant that is utilised to treat an iron ore resource located in the Limpopo province in South Africa. The technology is centralised around cyclone-based separation at higher densities. Commissioned in early October 2022, it was fully operational at nameplate capacity within a couple of days, and has been in continuous commercial production since.

The design of the plant's main modules incorporates Consulmet's signature modular approach with seamlessly ergonomic integration into any combination of requirements. The circuit also includes the company's unique water recovery (De-Grit) module to assist with reduction in slimes pumping requirements.

The SHDMS incorporates primary and secondary densification clusters from Multotec as well as screens from

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DEREK LAHEE



Vibramech. Consulmet mitigated the risk associated with the high wear associated with this application by incorporating a pumping solution from Pump & Abrasion's flagship Curve range.

A decade of success in the DRC

Ten years ago, Consulmet took the decision to open a DRC-owned office in Lubumbashi, to aggressively pursue the multiple current and future opportunities for its offerings. Fast-track a decade and the decision has paid off handsomely and has returned serious rewards.

This includes having won and completed, on time and on budget, a significant copper plant revitalisation and upgrading contract. The original plant was designed, supplied, erected, and

commissioned by Consulmet, which in totality serves the minerals and metals processing industries through the design, fabrication, supply, construction, operations and maintenance of production-ready processing and beneficiation plants.

Numerous other new plant and plant refurbishment/

revitalisation projects are being pursued by the Consulmet DRC team. The company is also actively chasing full/partial plant operations and maintenance (O&M) contracts. **MRA**

PEOPLE DRIVE PROGRESS

Consulmet has designed and constructed +/-10 processing plants per year, for the past 16 years and has in general done so with the same key personnel. The company's key performance driver is time: the focus is to complete anything and everything, according to specifications and quality control standards, in the shortest possible timeframe.

This is facilitated through a very experienced workforce, but also by embracing a very flat management structure, whereby decisions are taken quickly, and these decisions are converted into actions even faster. It is the norm to see Consulmet directors and HODs directly involved, on the ground, during the execution of projects.

Consulmet's teams are accustomed to adapting to and thriving in any conditions and are happy to go that extra personalised mile.



↑ 160tph Iron Ore Super High Dense Medium Separation (SHDMS) plant