**NEWS ARTICLE**

UCT progresses with concept study into novel zinc refining method

**26 July 2023:** Sample preparation for leach and characterisation test work has been completed for the concept study into developing a mini-scale, simple, green, and energy-efficient process to recover pure zinc from polymetallic South African ore concentrates. The suitable zinc concentrate sample was sourced through Vedanta from its Black Mountain operation, reports Professor **Jochen Petersen** from the University of Cape Town’s (UCT’s) Department of Chemical Engineering.

A comprehensive review of current industry practice for zinc refining will be submitted to *Minerals Processing and Extractive Metallurgy Review*. Development of an ammonia-based leaching process is also underway, including thermodynamic modelling.

The study will now focus on extracting data from the leach experiments to inform the operating conditions and likely efficiencies of the ammonia-based leaching process. In parallel, a basic process flowsheet will be developed, together with a baseline prefeasibility cost evaluation for operating the process at a 40 000 tpa zinc production facility.

“The outcomes will enable the decision whether to develop the envisaged process further towards industrialisation and what aspects of the process may require further technology development,” highlights Professor Petersen. While using an ammonia medium for base metal processing is well established, it has yet to be applied to zinc refining.

The low voltage, direct current electrowinning required presents the possibility of linking the process directly to using electricity generated by solar power. What is more, the production of green hydrogen by electrolysis can also be used to produce the oxygen required in the leach process.

“This is an exciting project that takes a whole new look at zinc refining in the light of the need to use low power processes and work clean and green,” comments **Simon Norton**, [International Zinc Association (IZA) Africa](http://www.zinc.org) Executive Director.

“The funding sponsors are keen to see us develop our own local capability to produce high-grade refined zinc, while at the same time support fundamental chemical engineering research.”

The sponsors are Vedanta South Africa, an IZA member that mines zinc ore in South Africa, and Duferco Steel Processing, which galvanizes steel sheet in Saldanha Bay, near Cape Town.

***Ends***

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**About the International Zinc Association**

The IZA is the only global industry association dedicated exclusively to the interests of zinc and its users. Operating internationally and locally through its regional affiliates, the IZA helps sustain the long-term global demand for zinc and its markets by promoting such key end uses as corrosion protection for steel and zinc as being essential in human health and crop nutrition. IZA’s main programmes are Sustainability & Environment, Technology & Market Development and Communications.

In South Africa, the IZA plays a vital role in establishing the basis for the successful revitalisation of the zinc industry by increasing awareness of zinc and its applications and benefits in key sectors and markets, which will ultimately translate into the increased uptake of zinc.

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