**PRESS RELEASE**

Boost for South African research on new ways to refine zinc ore

**Vedanta SA and Duferco Steel Processing fund research on clean, ‘green’ low-energy zinc refining**

**23 March 2022:** The [International Zinc Association (IZA)](http://www.zinc.org) Africa Desk has secured significant research funding to investigate the feasibility of new zinc refining processes to meet South Africa’s own demand for refined zinc, whilst using locally produced ore and concentrates. Should the research develop a winning chemical engineering solution, then an ideal location for a new zinc refinery could be Saldanha Bay, as it is an Industrial Development Zone (IDZ), on the doorstep of a zinc ore export port, and close to a big refined zinc user.

“The funding has been secured from within South Africa. The sponsors are very keen to see that we can develop our own capability within South Africa to produce special high-grade refined zinc and at the same time support fundamental chemical engineering research, while developing postgraduate research,” reports IZA Africa Desk spokesperson **Simon Norton**.

Two industrial sponsors are participating in the project, namely Vedanta South Africa, an IZA member, and Duferco Steel Processing, which galvanizes steel in Saldanha Bay. “We are very proud of these future-thinking sponsors. Not only are they supporting fundamental research in South Africa, they are also supporting a ‘green’ future for minerals processing,” emphasises Norton.

The research will focus on developing and understanding novel refining processes to significantly reduce the external power input compared to traditional pyrometallurgical processes. This will allow for economically viable production of SHG refined zinc. Ore usage may be further maximised by producing refined by-products such as silver and rare earth elements. “The proposed operation will also have a considerably reduced carbon footprint,” adds Norton.

The research work will be carried out at the University of Cape Town (UCT) in its state-of-the-art Department of Chemical Engineering under the leadership of **Professor Jochen Petersen**. In its proposal entitled **‘Concept and prefeasibility study of a small-scale zinc refinery in South Africa considering novel processes’**, UCT notesthat the development of a small-scale, relatively simple and energy-efficient process to recover zinc from polymetallic local concentrates “is a considerable challenge, given the limitations of existing processes.”

In support of this ‘back to the drawing board’ approach to seriously reconsider novel development processes that have never been commercialised to date, IZA Africa Desk launched its campaign for research funding in 2021. The exciting news is that Vedanta South Africa will sponsor a desktop study of a wide variety of zinc processes, while Duferco Steel Processing is funding laboratory-scale research on zinc process chemistry.

The experimental study will carefully explore the in-principle feasibility of a novel flowsheet for refined zinc production and by-product recovery from local ore concentrate materials, with the express emphasis on reduced and/or renewable energy input, as well as reduced carbon and environmental footprints, according to the research team.

The driving force behind the research goes back to Exxaro’s Zincor refinery on the East Rand, the only one of its kind in South Africa, which was closed down in 2011. Its yearly production of 117 000 tons of refined zinc was entirely for local consumption by hot dip galvanizers and continuous wire and sheet galvanizers. Applications ranged from shopping centre roofing to underground mining steel structures, structural steel, railway pylons and fencing.

Despite Zincor’s output, South Africa still had to import 10 000 t to 20 000 t of additional refined zinc for the country’s galvanizing requirements. Prior to 2011, South African consumption of refined zinc peaked at over 130 000 tons per annum. However, this has now plunged to only 47 000 t in 2020, a significant drop that Norton attributes to a decline in mining, construction, and industrial activity in the country. “IZA Africa Desk is thus working hard to get the use of refined zinc growing again in South Africa,” says Norton.

Recently, South African galvanizers experienced a severe shortage in the refined zinc supply due to four zinc refineries in Europe closing down. “The situation is compounded by the fact that base metal traders worldwide are selling zinc to Europe at inflated prices, rather than to South Africa at normal market prices,” notes Norton.

New zinc process chemistry is critical for investment in zinc refining in South Africa to support the government’s mooted R100 billion Infrastructure Plan. “We have an unreliable power supply in South Africa, and urgently need to find novel low-power methods to refine zinc. This also means we have to harness our local research teams, develop our own expertise, and hopefully come up with a zero power ‘green’ zinc refining process,” concludes Norton.

***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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