

Viridis Progresses Downstream Rare Earth Oxide Refining, Magnet Manufacturing and Recycling Partnerships

ASX Release: 6 November 2024

Highlights

- ▶ Viridis Mining and Minerals Limited ('Viridis') is pleased to announce that after entering into an exclusive joint venture for the separation, refining and recycling of Rare Earths with Ionic Rare Earths Limited (ASX: IXR) ('Ionic Rare Earths') ('JV')¹, the two companies have **incorporated Viridion Pty Ltd in Australia and Viridion Rare Earth Technologies Ltda in Brazil (together 'Viridion')**, as the commercial vehicle for the joint venture partnership.
- ▶ The transformational JV agreement between Viridis and Ionic Rare Earths has Viridion **strategically placed to be the first producer of refined Rare Earth Oxides ('REO')** from either a Mixed Rare Earth Carbonate ('MREC') or from the recycling of spent magnets using IXR's leading technology designed out of Belfast, UK.
- ▶ **Viridion is planning to kick-off the Scoping Studies for the REO Refinery and Magnet Recycling facilities in January 2025**, following Viridis completing the production of its MREC from a composite sample at its Southern Concessions.
- ▶ Viridion assessing several potential locations which can support pilot plants for both the REO Refinery and the spent Magnet Recycling facilities nearby to the existing Viridis operations. The Company is in the process of completing technical and commercial evaluations and looks forward to proceeding with its preferred option in the near future.
- ▶ Both **Viridis and Viridion have signed a Memorandum of Understanding ('MoU') with SENAI / FIEMG Innovation and Technology Centre of Minas Gerais**, owner and operator of Lab Fab, the first rare earth magnet laboratory in South America.
- ▶ The MoU between the parties will look to develop rare earth magnets at the Lab Fab facility in Lagoa Santa, Belo Horizonte. With Viridion's existing capabilities to produce rare earth oxides, the feed source for Lab Fab, it is uniquely placed to be the only local source of oxides to Lab Fab, as Viridis and Viridion look to create a fully integrated domestic rare earth supply chain, the first of its kind outside of China.

Chief Executive Officer, Rafael Moreno commented:

"With the Colossus Project now firmly established as one the leading rare earth projects worldwide, the opportunity to leverage IXR's trialled and proven technology and create a circular mine to magnet supply chain is a vital advantage for Viridion, as it looks to capitalise on the burgeoning supply chain that is developing in Brazil and more broadly South America.

Having recently returned from Brazil, it was fantastic to see the continual support from the local and state governments and key industry participants, not only for the Colossus project, but also for Viridion and our ambition to help develop a downstream supply chain in Brazil.

This support includes opportunities to secure land for the REO Refinery and the spent Magnet Recycling pilot plants. Having personally visited IXR's state of the art rare earth magnet recycling facility in Belfast, it's exciting to know that the Viridion JV already has the blueprint to replicate the same pilot plant in Brazil and become the leading producer of rare earth oxides from recycled magnets in LATAM.

The MoU with SENAI / FIEMG is another important example of support we have received from the local industry key decision makers. As we develop and enter more mature discussions with potential offtakers, it's clear that there is critical need to grow a Brazilian and South American rare earth magnet industry, to ensure security of supply for downstream users looking to decouple its dependence on the Chinese supply chain."

Viridis and Ionic Rare Earths Joint Venture

Viridis executed a binding term sheet with Ionic Rare Earths Limited in April 2024, for the commercialisation of Selective Separation Technology ('SST') to recover the Rare Earth Oxides from concentrates and carbonates feed, and exclusive rights to commercialise IXR's Rare Earth Recycling Technology ('RRT') in Brazil.

The JV between Viridis and Ionic Rare Earths aims to commercialise and implement the Separation and Recycling Technology within a separation plant in Brazil and is positioned to become the first major producer of the full suite of refined REOs in South America.

Viridis and Ionic Rare Earths have formed Viridion Pty Ltd in Australia and Viridion Rare Earth Technologies Ltda in Brazil, which will hold exclusive global rights (excluding Asia and Uganda) to the SST technology provided by IXR's wholly owned subsidiary, Ionic Technologies International Ltd ('IonicTech'), which produces rare earth element ('REE') Oxides from MREC or equivalent intermediate feed streams. Viridion will also own any new IP developed from the commercialisation process and will hold exclusive rights in Brazil to monetise, implement and commercialise IonicTech's RRT (Recycling) to a full-scale plant. This will also grant Viridion rights to exclusively commercialise SST for other Rare Earth producers, with an initial focus on partnering with existing Brazilian Rare Earth Projects before expanding the technology globally.

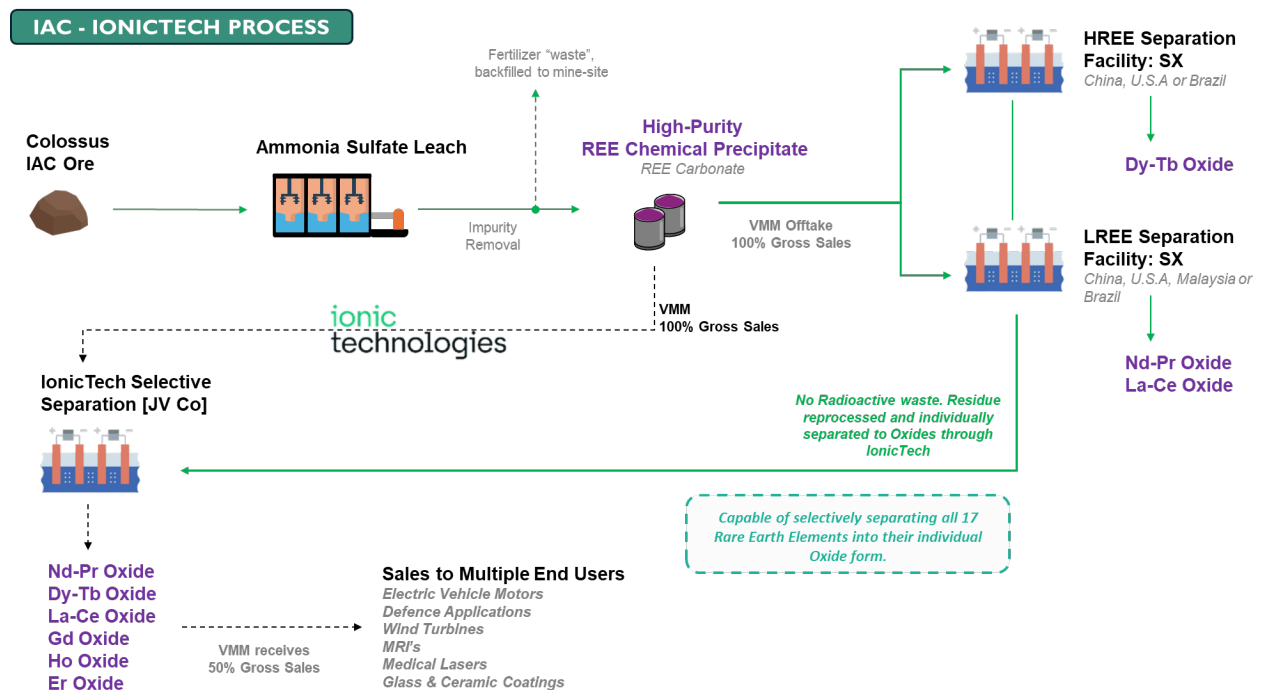


Figure 1: Simplified and conceptual flowsheet for Colossus integrating IonicTech into its downstream plant.

Figure 1 above exemplifies the simplicity of processing an Ionic Clay Project and developing a MREC through a single leaching agent. As seen by the recently announced maiden MREC test results² from the Northern Concessions of the Colossus Project which achieved **76% MREO recovery from Ore to MREC** simply through washing with a weak concentration (0.3M) of Ammonia Sulphate (salt solution) at pH 4.5 and room temperature over 30 minutes.

Given the soft clay and ionic mineralisation, there is no need for blasting, crushing, floatation, corrosive acids, high temperature cracking and leaching to develop a MREC as seen in hard-rock projects. The simplicity in Ionic

Clay processing to produce a high-purity (<1%) and high-value MREC is what yields a superior economic model compared to hard-rock assets and supports Colossus delivering a project capable of resetting the cost curve.

With this transformational JV, the MREC anticipated to be produced from Colossus has full optionality to be sold to an external separation plant OR directly process all the MREC out of Colossus into the Viridion downstream plant to produce a full suite of critical Rare Earth Oxides (using SST) for end customers.

Combined with the exclusive rights to use IonicTech's recycling IP and capabilities in Brazil, this will allow Viridis to become one of the premier global Rare Earth developers, having access to both a world class resource which will continue to progress aggressively alongside commercially disruptive technology in downstream processing.

This initiative places Brazil at the forefront of global REE separation outside of China, capable of producing both light REE and heavy REE oxides for multiple end users within a unified separation plant.

Memorandum of Understanding with SENAI / FIEMG

The initial MoU validity period between Viridion and SENAI is for 5 years. The main purpose of the agreement is to establish a basis for cooperation between Viridion / Viridis and SENAI Regional Department, with a view to jointly develop and produce rare earth magnets at Lab Fab, in the Brazilian State of Minas Gerais, by identifying activities of common interest between the parties, namely:

- Supply of raw materials by Viridion for pilot production of rare earth magnets.
- Promote actions to strengthen the parties and, consequently, their relations with industries interested in these technologies.
- Develop joint projects of applied research, assessment activities, experiments, training, consulting and specialised technological services.
- Implement other joint activities and programs, as well as pilot and experimental programs in areas and subjects of mutual interest and benefit that may be agreed upon between the parties.



Figure 2: Viridis executives and industry figures from Minas Gerais at MoU signing ceremony in Perth – (Left to Right) Germano Vieira [Partner Alger], Ronaldo Barquete [Director of Invest Minas], Klaus Peterson [Viridis In-Country Manager], Rafael Moreno [Viridis CEO], Flavio Roscoe [President FIEMG], Fernando Passalio [Secretary of Development Minas Gerais], Agha Shahzad Pervez [Viridis Executive Chairman], JP Braga [CEO Invest Minas], Antonio Malard [Partner Alger].

In addition to the government and industry support at municipality and state level, it's been pleasing to have delegates of Invest Minas, the Investment Promotion Agency of the state of Minas Gerais, visit IXR's facility in the UK and discussing the collective vision for the potential Brazilian REE supply chain.

During this visit, IXR management reiterated to Invest Minas the ability for Viridion to replicate the successful and world leading technology it has proven at its Belfast facility, and pledged its support to help CIT SENAI meet its initial NdFeB ambitions and map a path forward in growing an integrated REE supply chain with strong support from government and active engagement from industry in Brazil.



Figure 3: Invest Minas visit to IonicTech in Belfast, UK – (Left to Right) Tim Harrison [IXR Managing Director], Henrique Tavares Maior Soares [Manager at Invest Minas], Ana Beatriz Sullato [Strategic Advisor at Invest Minas], Fergal Coleman [IonicTech Head of Technology], and Tom Kelly [IonicTech Operations Director].

Approved for release by the Board of Viridis Mining and Minerals Ltd.

Contacts

For more information, please visit our website, www.viridismining.com.au or contact:

Carly Terzanidis

Company Secretary

Tel: + 61 3 9071 1847

Email: cosec@viridismining.com.au

Rafael Moreno

Chief Executive Officer

Tel: + 61 3 9071 1847

Email: rafaelm@viridismining.com.au

About Viridis Mining and Minerals

Viridis Mining and Minerals Limited is a resource exploration and development company with assets in Brazil, Canada and Australia. The Company's Projects comprise:

- The Colossus Project, which the Company considers to be prospective for Rare Earth Elements;
- The South Kitikmeot Project, which the Company considers to be prospective for gold;
- The Boddington West Project, which the Company considers to be prospective for gold;
- The Bindoon Project, which the Company considers to be prospective for nickel, copper and platinum group elements; and
- The Poochera and Smoky Projects, which the Company considers to be prospective for kaolin-halloysite.

References

1. VMM announcement dated 3 April 2024 'VMM JV For Separation, Refining & Recycling Rare Earths'
2. VMM announcement dated 24 September 2024 'Colossus Maiden Mixed Rare Earth Carbonate (MREC) Product'

Forward-Looking Statements

This announcement contains 'forward-looking information' based on the Company's expectations, estimates and projections as of the date the statements were made. This forward-looking information includes, among other things, statements concerning the Company's business strategy, plans, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations, mineral reserves and resources, results of exploration and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions and that the Company's results or performance may differ materially. Forward-looking information is subject to known and unknown risks, uncertainties, and other factors that may cause the Company's actual results, level of activity, performance or achievements to materially differ from those expressed or implied by such forward-looking information.