

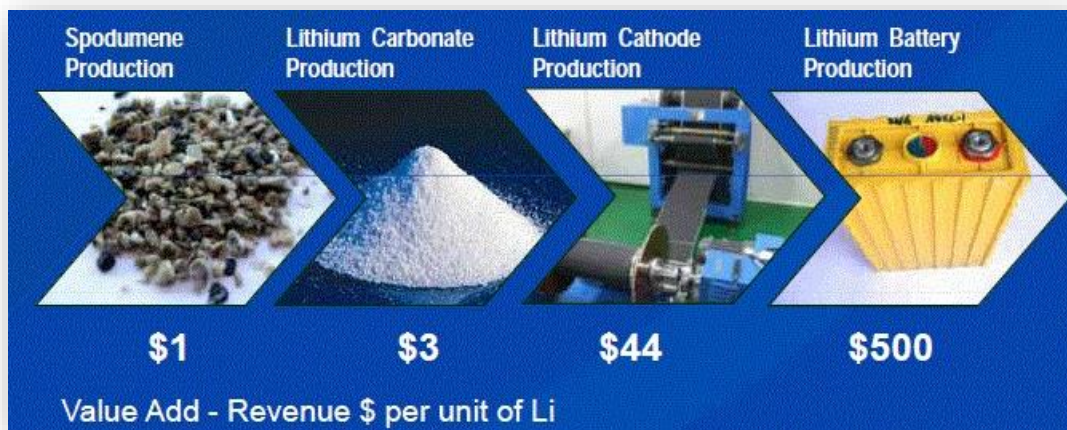
## Mining Technology Innovation – Recovery of Vanadium from Tailings Retreatment

### The Digger

Investors are starting to consider what a post-COVID 19 world could look like and where the growth opportunities will come from. One area that is consistently mentioned in Australia is mining technology and the recent Government economic recovery package has recognised it offers a unique opportunity to create jobs while supporting clean energy transitions around the world.

The CSIRO is also focused on mining that is innovative, productive, competitive and sustainable and that will be vital to Australia's future prosperity through the "application of new technologies, resource strategies, sensor systems and automation to improve the efficiency and drive productivity gains across the minerals value chain." I expect we will see a number of investment opportunities arising from process innovation that unlocks value and drives demand for energy minerals including the production of base and precious metals.

These opportunities will often be as a result of the need to solve problems present in society such as climate change and the resultant need to move to more renewable energy and cleaner transportation such as electric cars. In recent years this has seen a rapid evolution of energy minerals such as lithium, cobalt, vanadium, graphite and rare earths. Each of these have unique processing challenges and therefore there is value to be realised not in the mining and primary processing of these minerals but in the application of expert process knowledge to produce specialised and highly customised refined products.



One such opportunity is the need for innovative processes to drive increased supply of these metals including their recovery from the retreatment of tailings and mine wastes. Often these processes have the added benefit of reducing environmental liabilities and clean-up costs. Governments are becoming supportive of projects to stabilise and rehabilitate mine sites where residual minerals may also be recovered.

One of the key battery metals is vanadium. Core Resources, a Queensland based, internationally renowned metallurgical technology group through its venture arm is working with ENVEX ([X Group](#)), a South African company focussed on low cost recovery of metals from tailings.

Conventional vanadium production leaves substantial vanadium credits in calcine tailings. ENVEX through its innovative ion exchange technology can recover these credits.

The ENVEX reprocessing technology with heap leaching operations and ion exchange (IX) recovery has been proven at commercial scales previously at Wapadskloof on Transvaal Alloys tailings and is currently under license by ENVEX on the tailings of a major primary vanadium producer in Witbank.



Above: Witbank Calcine Dump Leaching

Left: Containerised IX Plant in Operation

It is an exciting time for innovation in mining technology and over the coming months I and the team at Core will be introducing to The Digger readers other developments we are seeing in this critical area.

Peter Rohner

Technical Director of Core Resources

Click through to <https://www.coreresources.com.au/core-strengthens-its-hydrometallurgical-capabilities-with-ion-exchange-technology-group/>