Cobre Montana disruption leading to lithium eruption

THE INSIDE STORY: Cobre Montana (ASX: CXB) makes no apologies for developing a new, disruptive hydrometallurgical process for the production of lithium carbonate from micas.

Cobre Montana managing director Adrian Griffin is a man who prides himself on his good manners; however, his enthusiasm for the disruptive qualities of Cobre's technological breakthrough might just result in more than a few industry toes being stepped upon.

The company has struck a technology agreement with Strategic Metallurgy to commercialise extraction of battery-grade lithium from lithium micas, ores that, until now, have been pretty much 'forgotten' by the mining industry.

The agreement with Strategic Metallurgy provides Cobre with:

exclusivity within Western Australia (WA) for up to 25 years (an initial period of 5 years, then an extension of 20 years if a plant is commissioned in WA within that first 5 years), plus exclusivity at the company's choice of two other national or international locations;

an option exercise price of $100,000 within the following 6 months, with two time extensions of 6 months by way of $5,000 payments, and

a gross product royalty of 2 per cent.

The Cobre/Strategic Metallurgy partnership recently claimed a world-first for continuous production of lithium carbonate.

While lithium carbonate has been produced previously, it hasn't been done in the way this partnership devised, nor from the type of ore it is using.

The innovative lithium extraction technology is both a major scientific breakthrough and a simple solution to lowering the costs of production of lithium carbonate.

A key ingredient of the Cobre innovation is removing the energy-intensive processing step of roasting, which historically rendered processing of micas uneconomic.

"For micas, the roasting step has been problematic, as mica ores generally don't have a grade higher than about 4 per cent lithium oxide," Griffin told *The Resources Roadhouse*.

"Conventional lithium producers – hard-rock producers – mine spodumene or petalite, and those spodumene and petalite concentrates have a grade of about 6 per cent lithium oxide.

"If that grade drops to four or even two per cent, you simply can't afford to pay for the energy, so the process doesn't work – you can't achieve a commercial outcome.

"We've designed a process flowsheet that removes the energy from the roasting step."

Recent testwork on lithium mica ore samples from the Lepidolite Hill deposit near Coolgardie in WA (80% Cobre Montana and 20% Focus Minerals (ASX: FML)) demonstrated the new technology's ability to produce lithium chemicals from mica without the need for roasting.

Those results followed Cobre's production of lithium carbonate from froth flotation and leaching testwork carried out on tin tailings from the Cinovec project in the Czech Republic, where the company has a non-binding heads of agreement with European Metals Holdings (ASX: EMH) to process lithium mineralisation on a 50/50 joint venture basis.

The Cinovec tests achieved excellent flotation yields and good recoveries of both lithium and potassium, the latter being a significant by-product credit, in the form of potassium sulphate, for marketing directly into the fertilizer industry.

By accessing ore from tailings dumps and other, similar areas, Cobre has advanced well towards production by completely circumventing one of the most fundamental, and time-consuming, aspects of any mining operation – the actual mining itself.

"By removing the energy step, you get a process with an operating cost that's significantly less than the price of the product you're selling," Griffin continued.

“It means too that all the deposits which are available – the ones people haven’t used in the past because they weren't economic at the time – are suddenly back in the game.

“So now, there are any number of lithium mica-rich mine tailings, mine dumps and deposits that simply haven’t been mined, or even explored, because people didn’t know what to do with the stuff.”

Cobre has been active in securing strategic alliances with other ASX-listed companies, including Pilbara Minerals (ASX: PLS) and Tungsten Mining (ASX: TGN), to scrutinise lithium and rare metals in prospective locations within WA, as well as acquiring lithium exploration assets near Greenbushes and Ravensthorpe, also in WA.

If the company can repeat the success it's achieved to date at Cinovec in any of these domestic locations, then it looks set for an interesting ride.

When European Metals approached Cobre late last year, seeking ideas on what to do with the substantial lithium mica credits within its Czech tin and tungsten deposit, Cobre ran some samples through the lab and produced the results mentioned above.

“All the principal building blocks were there and, having proved we could extract lithium carbonate, we went back and had a look at the ore body – and instead of modelling it for tin and tungsten we modelled it for lithium,” Griffin explained.

“At Cinovec we've taken something that wasn’t considered a lithium deposit of any significance and, by simply knowing how to process the material, converted it – in the space of three or four months, without drilling a single hole – converted it into the fourth largest hard-rock lithium deposit in the world.”

Based on drilling carried out during the 1970s and '80s, European Metals has reported a non-JORC Inferred Resource estimate for Cinovec of 514.8 million tonnes at 0.43 lithium oxide (0.1% lithium cut-off) for 5.5 million tonnes lithium carbonate equivalent (LCE), plus a further exploration target of 350 to 450 million tonnes at 0.39 to 0.47 per cent lithium oxide for 3.4 to 5.3 million tonnes LCE.

At its Pilgangoora deposit in WA, Pilbara Metals has calculated a JORC 2012 Inferred Resource estimate of 8.6 million tonnes at 1.01 per cent lithium oxide for 87,000 tonnes of lithium.

Cobre is confident of hitting full-scale lithium production at current 'brine-like' cost levels from its global portfolio of lithium mica deposits.

It estimates its operating costs for the production of lithium carbonate at the world-leading Cinovec project will come in at less than US$2,000 per tonne after potassium credits.

The Czech project is ideally situated in terms of its proximity to infrastructure: there is a sealed road adjacent to the deposit; two rail lines are located nearby, and an active 22-kilovolt transmission line is already in-situ at the mine.

Studies by European Metals have demonstrated Cinovec's suitability for bulk underground mining, with more than 400,000 tonnes already trial-mined as a sub-level open stope.

"Whether people realise it or not, the lithium industry as we know it is about to undergo a dramatic transformation," Griffin enthused.

"The whole thrust of that transformation is disruptive technology".

"We don't just intend to lead that charge, we aim to control the largest lithium resource base in the world."

Cobre Montana NL (ASX: CXB)
…The short story

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