

ASX ANNOUNCEMENT



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Lithium Australia's next-generation lithium recovery process approaching commercialisation

Lithium Australia NL (or 'the Company'; ASX: LIT) has developed its LieNA[®] caustic conversion process for the recovery of lithium from spodumene (the principal ore of lithium).

LieNA[®] enables the production of lithium chemicals in the form of hydroxide, carbonate or phosphate without roasting. This provides the flexibility to use the lithium phosphate for direct production of lithium ferro phosphate ('LFP') cathode powder without the requirement for a lithium hydroxide or carbonate precursor. Further, LieNA[®] can recover lithium from ultrafine and/or contaminated feed, thereby improving the pathway from the mine gate to the production of lithium chemicals.

HIGHLIGHTS

- Spodumene recovered from drill samples.
- Lithium concentrates produced for testing.
- Pilot plant construction commenced.
- Reagent regeneration being evaluated.
- LieNA[®] commercialisation agreement executed.

Comment from Lithium Australia managing director Adrian Griffin

"The lithium-ion battery industry does need to reduce its environmental footprint, and the improved recoveries afforded by LieNA[®] could lead to the production of more lithium chemical units from the same sized mining excavation – and at a lower unit cost. The Company's R&D programme, which is co-funded by a federal government research grant, will provide a more sustainable pathway for battery production. Lithium Australia's commercialisation of its LieNA[®] process is well underway."

LieNA[®] development programme

The Company's LieNA[®] conversion process – already extensively bench tested at ANSTO's Lucas Heights facility in New South Wales, Australia – directly digests fine and/or low-grade spodumene in a caustic solution at elevated temperature and pressure to produce lithium sodalite (a solid aluminosilicate mineral). The lithium is then easily leached out with acid. Importantly, LieNA[®] can be applied to much of the spodumene discharged to tailings by existing concentrators. Further, no roasting is required and water utilisation is better than that of conventional processes.

In February 2020, the Company was [awarded a CRC-P grant](#) as part of a \$3.6 million development programme that includes the construction and operation of a LieNA[®] pilot



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plant. Partners in that programme include ANSTO, Essential Metals Ltd, VSPC Ltd, ALS Metallurgy Pty Ltd, Murdoch University, Curtin University and Carnac Project Delivery Services.

To date, spodumene samples have been recovered by drilling at the Pioneer Dome project of Essential Metals Ltd, with a spodumene concentrate then produced by ALS Metallurgy to provide initial feed for the pilot plant. That feed will be used to produce a refined lithium phosphate product suitable for the direct production of lithium ferro phosphate ('LFP') cathode powder.

The LieNA[®] development programme will culminate in a preliminary feasibility study to evaluate its viability in a number of jurisdictions, including Australia and Europe.

Pilot plant construction

Construction of an autoclave, the principal component of the pilot plant, has begun in Mumbai, India. (At this stage COVID has had no impact on the construction schedule.) The Company anticipates delivery of the autoclave to Australia in October 2021, with plant construction at ANSTO to be completed before the end of the year to enable the first pilot run.

A shorter path to battery production

The LieNA[®] process is flexible enough to produce a range of lithium chemicals, including lithium hydroxide, lithium carbonate and lithium phosphate. Significantly, lithium phosphate can provide direct feed for the production of LFP cathode powder, already produced by the Company's wholly owned subsidiary VSPC Ltd ('VSPC') at its Brisbane pilot plant and R&D facility.

VSPC will take the lithium phosphate generated by LieNA[®] at the ANSTO pilot plant and use it to create LFP cathode powder, which in turn will be used to produce commercial format lithium-ion battery cells for testing.

Commercialisation agreement

On 28 April 2021, the Company executed a commercialisation agreement with Deutsche Rohstoff AG ('DRAG'), a German natural resources holding and investment company. The agreement provides for the issue of an exclusive LieNA[®] licence in Europe, subject to DRAG:

- subscribing for 3,125,000 fully paid ordinary shares in the capital of Lithium Australia for A\$250,000 at commencement;
- subscribing for A\$400,000 of fully paid ordinary shares in the capital of Lithium Australia priced at 125% of the 30-day VWAP for those shares on the day that construction of the pilot plant is completed;
- paying Lithium Australia A\$400,000 on delivery of a positive, European-based pre-feasibility study, and
- paying a 2% gross royalty on product generated through application of the LieNA[®] process in Europe.

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The agreement will expire if DRAG fails to construct a LieNA[®] plant in Europe within a period of 10 years from the commencement date.

Authorised for release by the Board.

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Lithium Australia aims to ensure an ethical and sustainable supply of energy metals to the battery industry (enhancing energy security in the process) by creating a circular battery economy. The recycling of old lithium-ion batteries to new is intrinsic to this plan. While rationalising its portfolio of lithium projects/alliances, the Company continues with R&D on its proprietary extraction processes for the conversion of *all* lithium silicates (including mine waste), and of unused fines from spodumene processing, to lithium chemicals. From those chemicals, Lithium Australia plans to produce advanced components for the battery industry globally, and for stationary energy storage systems within Australia. By uniting resources and innovation, the Company seeks to vertically integrate lithium extraction, processing and recycling.

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