

ASX ANNOUNCEMENT



30 June 2021

European Patent Office will grant patent to Lithium Australia

HIGHLIGHTS

- **Lithium Australia's proprietary LieNA[®] technology:**
 - **significantly improves metallurgical recovery of lithium from fine and low-grade spodumene;**
 - **as a caustic conversion process, recovers lithium without roasting;**
 - **can produce direct feed for the production of lithium-ferro-phosphate ('LFP') lithium-ion batteries ('LIBs').**
- **The European Patent Office intends to grant a patent for the first-generation LieNA[®] lithium processing technology that will provide legal protection in nominated European countries for 20 years from the date of filing.**
- **LieNA[®] pilot plant trials due to commence soon.**

ACN: 126 129 413
ASX: LIT

Level 1
677 Murray St
West Perth WA 6005

PO Box 1088
West Perth WA 6872

Phone +61 (0) 8 6145 0288
Fax +61 (0) 8 9475 0847

info@lithium-au.com
lithium-au.com

Background

Developed by Lithium Australia NL (ASX: LIT, 'the Company'), the LieNA[®] process is designed to improve the recovery of lithium from spodumene (the most common hard-rock source of lithium) for use in the production of critical battery materials for LIBs. Improved lithium recoveries can reduce both the footprint and environmental impact of mining and enhance sustainability.

How LieNA[®] works

LieNA[®] consists of a caustic digestion process followed by acid leaching to recover the desired lithium chemical. Unlike conventional lithium chemical production that relies on roasting and an acid leach, no roasting is involved, making LieNA[®] a more environmentally sound method of processing spodumene.

Importantly, LieNA[®] can recover lithium from the fine and low-grade spodumene that would, during conventional spodumene beneficiation, report to waste or tailings streams. In fact, the recovery rate of lithium during conventional spodumene beneficiation can be as low as 50%, owing to the constraints of concentrate offtake specifications. Unlike LieNA[®], such conventional processes are neither amenable to fine feed material nor tolerant of impurities.

LieNA[®] development

The Company, in partnership with ANSTO (the Australian Nuclear Science and Technology Organisation), has performed extensive test work on LieNA[®], demonstrating its ability to process material that cannot be handled by conventional lithium converters.

LieNA[®] can produce lithium phosphate from that 'waste' spodumene, with the lithium phosphate then used as direct feed in the production of) LFP-type LIBs – there is no

ASX ANNOUNCEMENT



requirement for further chemical conversion first. (It is worth noting that LFP is currently the fastest growing sector of the LIB market.)

Co-funding for research

The Company's drive for battery-material sustainability, secure supply chains and processing options that accord with high environmental, social and governance (ESG) standards has earned it government recognition, as evidenced by federal co-funding – through a Co-operative Research Centres Projects (CRC-P) grant – for the construction and operation of a LieNA[®] pilot plant, a project valued at \$3.6 million.

Construction of an autoclave, the principal component of the pilot plant, has commenced in Mumbai, India, and so far COVID has had no impact on the build schedule. The Company anticipates delivery to Australia in October 2021, with plant construction at ANSTO to be completed by year's end to enable the first pilot run.

VSPC Ltd, a wholly owned Company subsidiary, will use the lithium phosphate generated by the pilot plant to create LFP cathode powder at its Brisbane facility. The LFP powder will then be used to produce commercial-format LIB cells for testing.

First-generation LieNA[®] patent grant

The examining division of the European Patent Office intends to grant a European patent for application number 17 836 093.9 (PCT/AU2017/050808), with a priority date of 02 August 2016. Once granted, the Company will have long-term protection and control over the invention for up to 20 years from the date of filing, 02 August 2017, in nominated European countries.

A patent has been granted for this application in Australia ([see announcement of 06 April 2020](#)).

Second-generation LieNA[®] patent application

Patent application PCT/AU2019/050773 details the second-generation LieNA[®] patent application, published under the Patent Cooperation Treaty by the World Intellectual Property Organisation with a priority date of 24 July 2018.

The Company has received a written opinion from the International Searching Authority on the patentability of the application, confirming that the claims are novel and inventive. The application has been lodged in the following jurisdictions.

- Australia – national phase entry has commenced and awaiting examination.
- The US – under examination.
- China – national phase entry has commenced and awaiting examination.
- Europe – under examination.
- Brazil – national phase entry has commenced and awaiting examination.
- Canada – national phase entry has commenced and awaiting examination.

ASX ANNOUNCEMENT



Commercialisation

As with all such technology, the commercialisation of LieNA[®] relies on advancing from laboratory studies to the operation of a production facility, and that involves incrementally increasing operating scale to reduce process risk as capacity expands. The transition from bench-scale to first-generation pilot plant is vital to that de-risking process.

The Company is in discussions with various spodumene concentrate producers and lithium chemical manufacturers who understand the gap LieNA[®] could fill, as well as its potential if commercialised.

As announced on 29 April 2021, the Company has executed a commercialisation agreement with Deutsche Rohstoff AG ('DRAG') for the issue of an exclusive LieNA[®] licence in Europe.

Comment from Lithium Australia managing director Adrian Griffin

"Lithium Australia continues to focus on developing novel solutions to lithium processing problems. Commercialisation of the LieNA[®] process will be an opportunity to improve the sustainability of the LIB industry, which drastically needs to reduce its environmental footprint. The improved recoveries LieNA[®] affords could permit the production of more lithium chemical units from the same size of mining excavation – and at a lower unit cost. What's more, LieNA[®] can produce lithium phosphate from spodumene as direct feed for the production of LFP, the fastest growing sector of the LIB market, and that is a major advantage.

"We see an immediate application for LieNA[®] in Australia, given that this country produces well over half the world's lithium and nearly all of its spodumene requirements, despite significant quantities of the latter never making it into the processing supply chain. The problem starts with the very nature of spodumene and the technology currently used to recover lithium from it. That problem could be solved by more efficient processing, and that is our aim."

Authorised for release by the Board.

Adrian Griffin

Managing Director

Mobile +61 (0) 418 927 658

Adrian.Griffin@lithium-au.com

Barry Woodhouse

Company Secretary

Mobile +61 (0) 438 674 259

Barry.Woodhouse@lithium-au.com

About Lithium Australia NL

Lithium Australia aims to ensure an ethical, sustainable and efficient 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 to develop 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

ASX ANNOUNCEMENT



within Australia. By uniting resources and innovation, the Company seeks to vertically integrate lithium extraction, processing and recycling.

Media contacts

Adrian Griffin, Lithium Australia NL

08 6145 0288 | +61 (0) 418 927 658

