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Lithium recycled from spent batteries

HIGHLIGHTS

- Refined lithium phosphate ('LP') successfully produced using spent lithium-ion batteries ('LIBs') as a feed material.
- Production of lithium-ferro-phosphate ('LFP') cathode powder from the recycled LP underway.
- Coin cells will be produced to test performance of the re-birthed cathode materials.
- Nickel and cobalt recovered in a form suitable for commercial refining.

ACN: 126 129 413
ASX: LITLevel 1
675 Murray St
West Perth WA 6005PO Box 1088
West Perth WA 6872Phone +61 (0) 8 6145 0288
Fax +61 (0) 8 9475 0847info@lithium-au.com
lithium-au.com

By successfully recovering battery metals, lithium in particular, from spent LIBs, Lithium Australia NL (ASX: LIT, 'the Company') can provide a sustainable solution to a major recycling challenge – that of batteries being consigned to landfill – and pave the way for the re-birthing of cathode materials.

The Company is pleased to provide an update on its latest recycling achievements.

Recovery of metal powder from spent LIBs

Envirostream Australia Pty Ltd ('Envirostream' – 14.29% LIT-owned) shreds LIBs and separates the components for reuse in the battery and other industries. One of the products generated during that shredding process is mixed metal dust ('MMD'), derived largely from the battery electrodes. Envirostream has supplied the Company with MMD for recycling technology development studies, to recover the lithium in particular, but also cobalt, nickel and copper. Most commercial recycling processes do not recover lithium.

Lithium for re-birthing of battery cathodes

LIT's commercial objective is to produce refined LP from spent LIBs and use it directly in the production of new LFP cathode material.

Other battery metals, including nickel and cobalt, have also been recovered in the process as a concentrate suitable as a feed for conventional refining processes.

Lithium recovered from the MMD in the form of LP was subsequently refined for use as a precursor in the production of LFP cathode powder. That was achieved via the Company's proprietary LP precipitation and refining technology, developed in collaboration with Australian Nuclear Science and Technology Organisation ('ANSTO'). The composition of the refined LP product is summarised in Table 1 below.

Table 1. Analysis of LP produced using MMD from spent LIBs.

Li ₃ PO ₄	K	Na	Ca	S
%	% w/w	% w/w	% w/w	% w/w
>98%	0.001	0.05	0.005	0.24

ASX ANNOUNCEMENT



The refined LP produced by LIT at ANSTO is the first batch to originate from recycled battery material. It will be converted to LFP at the Company's 100%-owned VSPC cathode powder pilot plant, located in Brisbane, Australia. That LFP will be used to make coin cells for performance testing of the cathode materials.

Comment from Lithium Australia managing director, Adrian Griffin

"Currently, few recycling operations around the world can recover lithium from LIBs. LIT's process has the potential to not only improve the sustainability of LIBs but also ease future supply constraints that may prove problematic to the industry.

The Company's ability to employ LP in the direct generation of LFP is a significant technical achievement, one that reduces the number of process steps required to manufacture the cathode powder. That's great news, because LFP is the perfect battery configuration for energy-storage systems suitable for the harsh Australian environment."

Adrian Griffin

Managing Director

Mobile +61 (0) 418 927 658

Adrian.Griffin@lithium-au.com

Barry Woodhouse

CFO and Company Secretary

Mobile +61 (0) 438 674 259

Barry.Woodhouse@lithium-au.com

About Lithium Australia NL

Lithium Australia aspires to 'close the loop' on the energy-metal cycle in an ethical and sustainable manner. To that end, it has amassed a portfolio of projects and alliances and developed innovative extraction processes to convert *all* lithium silicates (including mine waste) to lithium chemicals. From these chemicals, the Company plans to produce advanced components for the lithium-ion battery industry. The final step for Lithium Australia involves the recycling of spent batteries and e-waste. By uniting resources and the best available technology, the Company aims to establish a vertically integrated lithium processing business.

Media contacts

Adrian Griffin Lithium Australia NL 08 6145 0288 | +61 (0) 418 927 658

Kevin Skinner Field Public Relations 08 8234 9555 | +61 (0) 414 822 631