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Envirostream trials use of recycled battery products to boost crop fertiliser

HIGHLIGHTS

- Lithium Australia's recycling division, Envirostream Australia, is targeting new markets for its recycled battery products.
- Low-value spent alkaline batteries could provide micro-nutrients for commercial crops.
- Initial greenhouse pot tests have provided the inspiration for field trials.
- A field trial site has been selected on the basis of soil and crop type.
- There is potential for benefit to Western Australian broad-acre pastoralists.
- Reduces landfill and the carbon footprint of the battery industry.

Introduction

As part of its commitment to a circular battery economy (and environmental, social and governance responsibilities), the recycling division of Lithium Australia NL (ASX: LIT), Envirostream Australia Pty Ltd ('Envirostream'), is assessing the use of zinc and manganese derived from recycled alkaline batteries as micro-nutrient supplements in fertilisers (see ASX announcement 11 May 2020), potentially a new market for such materials in Australia.

Initial pot trials undertaken in controlled greenhouse conditions indicated that the Envirostream product did have potential as a source of micronutrients in fertilisers. Moreover, it provides an opportunity to reduce the carbon footprint of the battery industry, as well as landfill contamination, while improving global food production.

Preparation for field trials

A site suitable for field trials has been located in the wheatbelt of Western Australia, a region that produces about 14 million tonnes of grain annually and is thus a major contributor to Australia's export economy. The site is located near the rural town of Kojonup (see Figure 1).



Figure 1. Location of Kojonup 260 kilometres southeast of Perth, capital of Western Australia.

Soils in the area selected (see Figure 2) have a low pH and are deficient in zinc, manganese and phosphate; therefore, they are considered ideal for the application of fertilisers containing the manganese and zinc compounds recovered by Envirostream from spent alkaline batteries.

Blending of the manganese/zinc supplement with major-element fertilisers has begun, in preparation for wheat seeding, which is anticipated within the next two weeks.



Figure 2. The rural area in which the field trial will be undertaken.

Source material

Australia sells around 6,000 tonnes of alkaline batteries a year. In 2019, the nation's Battery Stewardship Council ('BSC') estimated that, at the end of their useful life, 97% of those batteries were disposed of in municipal waste streams and reported to landfill, a sad indictment of our society's environmental management practices.

Hopefully, though, those practices will improve with the introduction of a voluntary battery stewardship programme currently being developed by the BSC. Similar initiatives implemented in other countries have been instrumental in improving the proportion of spent batteries recovered for recycling.

ASX ANNOUNCEMENT



Further agricultural trials

Envirostream plans to conduct additional field trials in jurisdictions outside Australia. To that end, it seeks partners willing to explore and possibly enhance the efficacy of this proposed solution to alkaline battery management.

Comment from Adrian Griffin, director of Envirostream and managing director of Lithium Australia

“Globally, the disposal of alkaline batteries has become a major problem. Our plan for repurposing the active components of the spent cells is not only a significant step towards worldwide environmental management of the issue but could also have a powerful influence on the sustainability of disposable batteries. As such, it is an integral part of Lithium Australia’s quest to develop a circular economy for *all* battery types – which is certainly something society requires.”

Authorised for release by the Board.

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About Lithium Australia NL

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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