



From profligate waste to new-generation batteries ~ Lithium Australia can provide the solutions

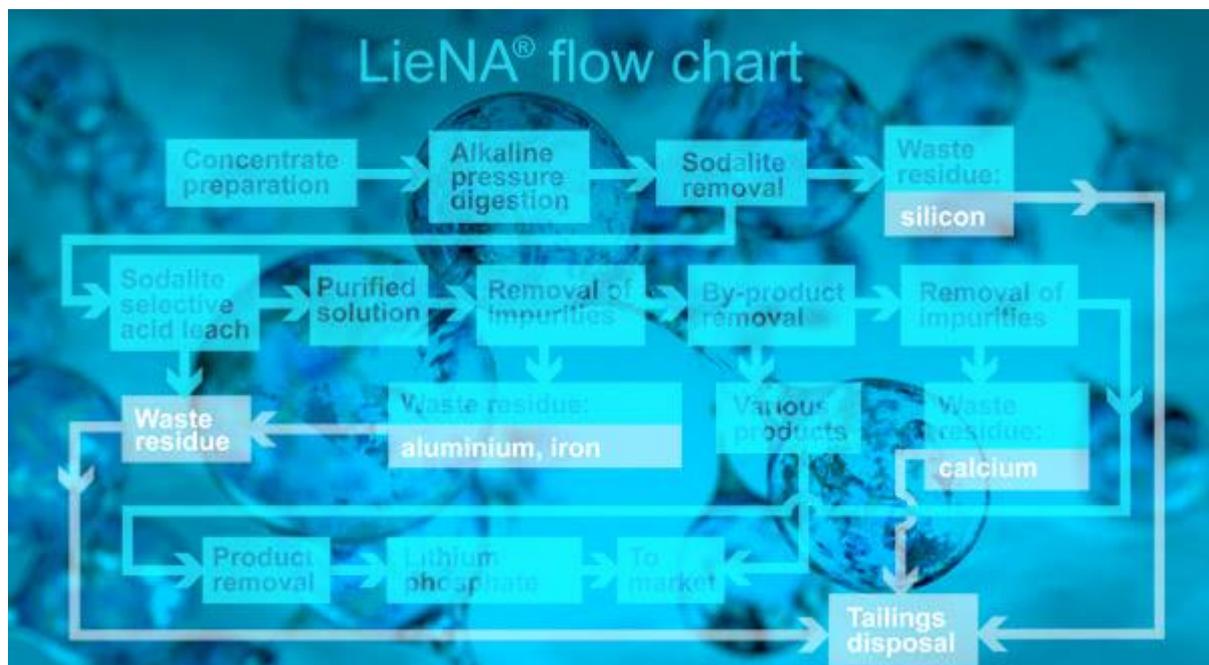
Right now the lithium industry has a problem (perhaps more than one!): production of lithium, from the ore through to the end product (that is, commercial spodumene concentrates), is less than ideal; indeed, lithium recoveries as low as 50% are not uncommon. Why?

The mineral spodumene has two perfect ‘cleavages’ that break easily along planes perpendicular to each other. When the ore is ground to liberate the spodumene, abundant fine material is generated. Downstream processing of the liberated spodumene by the ‘converters’ that produce lithium chemicals is constrained by particle size – fine material cannot be processed.

Currently, such fine spodumene, along with any contaminated material, ends up as waste in mine tailings ... and there goes up to half of the lithium that was actually mined.

Chemical conversion not constrained by sensitivity to particle size could well be the solution, by utilising the fine/contaminated spodumene that otherwise reports to tailings. Commercial development of such a process would provide lithium miners with unparalleled gains in efficiency, increasing ore reserves, reducing costs and enhancing sustainability – all of which would significantly reduce the environmental impact of mining and make for more efficient use of the world’s resources.

Recognising the importance of such outcomes, the Australian federal government is backing a \$3.6 million programme to pilot test a process developed by Lithium Australia and the Australian Nuclear Science and Technology Organisation (ANSTO) (see [ASX announcement dated 13 Feb 2020](#)). Trademarked as LieNA®, it can recover lithium from fine/contaminated spodumene, and unlike conventional conversion no roasting is required.



Significantly, Lithium Australia's LieNA® process can be tailored to produce a range of high-purity lithium chemicals, production of lithium phosphate (LP) being the most efficient outcome. LP can be used as direct feed in the manufacture of lithium-ferro-phosphate (LFP) batteries, considered the 'safe' lithium-ion batteries due to their high thermal stability and long cycle life.

Commercialisation of LieNA® technology will provide an opportunity to capitalise on the waste generated from today's inefficient processing practices and deliver a high-quality product into the battery market.

Batteries

In addition to its support for LieNA®, the federal government is backing Lithium Australia subsidiary VSPC Limited in its \$5 million programme to develop fast-charge batteries for transportation applications, the preferred starting point being the use of LFP (see [ASX announcement dated 12 Feb 2020](#)).

Regards

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