

This announcement contains inside information

10 November 2023

**Neometals Ltd**  
**("Neometals" or "the Company")**

**Successful ELi Purification Pilot Trial**

**Highlights:**

- Neometals 70% owned lithium chemical processing technology ("ELi™") purifies lithium chloride to specification required for electrolysis trial to commence;
- Pilot trials are being co-funded by Bondalti group, whilst a new co-operation agreement is being negotiated to cover proposed Demonstration Plant in Portugal.
- ELi™ has several advantages over conventional processes including lower operating expenditures by substituting electricity for chemical reagents, higher product purity and a smaller CO<sub>2</sub> footprint.

Innovative battery materials recycler, Neometals Ltd (ASX: NMT & AIM: NMT) ("Neometals" or "the Company"), is pleased to announce successful completion of the purification phase ("Purification Testwork") of its Lithium Chemical pilot trial ("Pilot"). The Purification Testwork, conducted on a brine feed source, has confirmed earlier bench-scale testing by removing >97% of brine feed source impurities. This supports production of a purified brine solution that sits comfortably within specification for subsequent electrolysis stage of the Company's majority owned ELi™ process ("ELi™ Technology").

Neometals' Lithium Chemical business unit is commercialising the ELi™ Technology owned by Reed Advanced Materials Pty Ltd ("RAM") (70% NMT, 30% Mineral Resources Ltd (ASX:MIN)). RAM is co-funding the Pilot with Bondalti group, Portugal's largest chlor-alkali chemical producer and held by José de Mello Group, one of Portugal's largest corporate groups.

The ELi™ process comprises brine purification, followed by electrolysis where electricity is used to convert lithium chloride solutions into lithium hydroxide and/or lithium carbonate. The purification Pilot, undertaken by a third party laboratory, processed an actual South American salar brine concentrate.

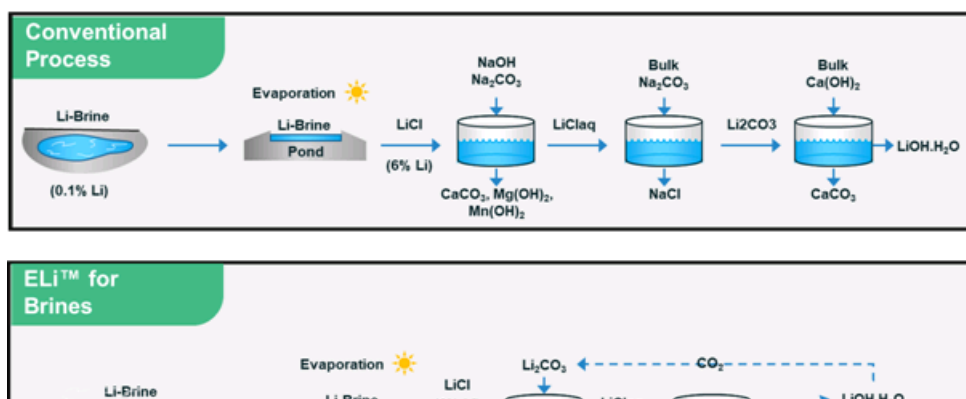
The pilot has confirmed earlier bench-scale testing and successfully removed from the brine the impurities that are impediments to optimum electrolysis performance. Brine analysis "before" (unpurified brine feed) and "after" (purified brine) is summarised as follows:

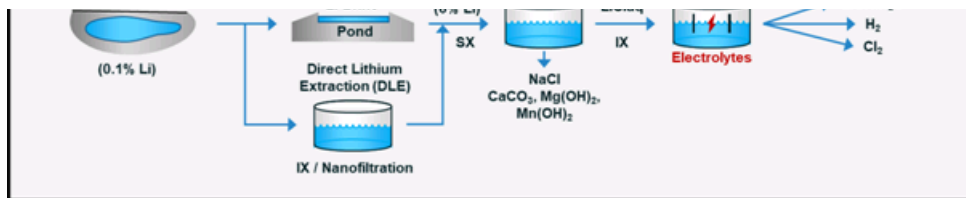
**Table 1 - Assay Results before and after Purification**

(mg/L)	Li	Ca	Mg	B	Sr	Si
<b>Before</b>	62,654	6,260	15,792	7,141	71	52
<b>After (ave)</b>	45,100	<0.9	<0.09	<0.4	<0.002	1
<b>% removed*</b>	n/a	<b>&gt;99.98</b>	<b>&gt;99.99</b>	<b>&gt;99.99</b>	<b>&gt;99.99</b>	<b>&gt;97</b>

\*Using the assay detection limit for calculation of recovery

ELi™ has several advantages over conventional processes including lower operating expenditures by substituting electricity for chemical reagents, higher product purity and a smaller CO<sub>2</sub> footprint. The Purification Testwork successfully removed impurities that can impede electrolysis efficiency (consumption). Higher and stable electrical current efficiency in turn extends electrolysis membrane durability (useful life), reducing maintenance time and cost and increasing the end-product grade.





**Figure 1:** Schematic showing a comparison of the conventional flowsheet for the production of lithium hydroxide from brines with the Eli™ process

### Next steps

The schedule for next stage activities is as follows:

Activity	Location	Completion
Purified brine delivery	Vancouver	Q4 23
Brine and test preparation	Buffalo	Q4 23
Split sample for electrolysis pilot	Buffalo	Q4 23
Full-scale test	Vancouver	Q4 23
Long-term electrolysis pilot	Buffalo	Q1 24
Lithium hydroxide crystallisation	Buffalo	Q1 24

### Background - Lithium Refinery("LR") Project

With the original planned pilot activities nearing conclusion and Bondalti's parent incorporating a dedicated lithium subsidiary, Lithium Energy S.A., RAM and Bondalti Group are continuing to co-fund the agreed pilot plant activities while a new cooperation agreement is being negotiated in parallel<sup>[1]</sup>. The evaluation activities completion of an engineering cost study ("LR ECS") and pilot-scale metallurgical test-work ("Pilot Trials").

**Table 2:** Key LR ECS Metrics\*

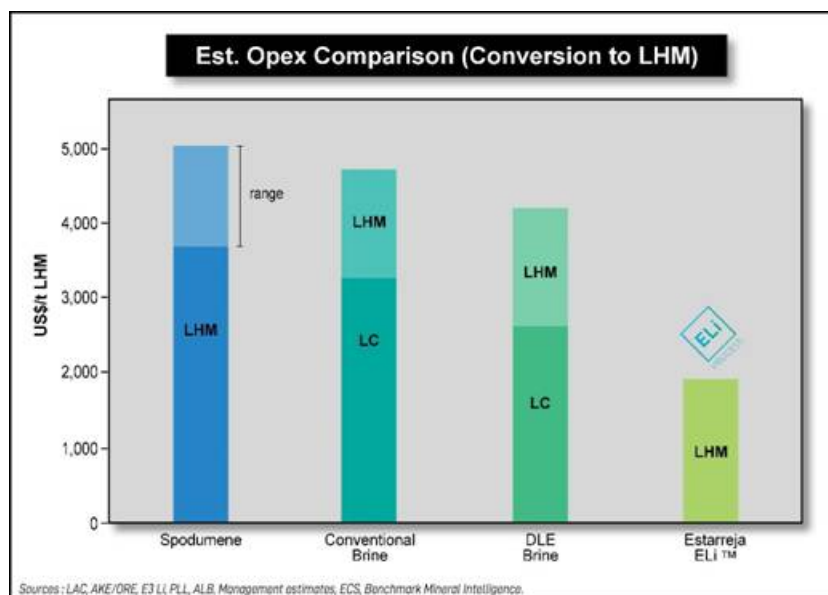
	ECS Metrics (100% ownership basis)
Annual Production	25,000tpa LHM
Annual Throughput	80,000 tpa Brine @ 6% Li
Average Operating Cost (±15%)*	€1,768/t (US\$1,945/t) LHM
Total initial capital costs (±15%)*	€405M (US\$446 M)
Capital Intensity****	€16,200/t (US\$17,840/t) LHM capacity

\* (for full details refer to Neometals ASX announcement headlined "Portugal Lithium Refinery Study Confirms Step-change Opex of Eli™ Technology" released on 26<sup>th</sup> April 2023).

\*\* from receipt of 6% Li brine concentrate to packaged high purity "battery grade" lithium hydroxide product, excluding by-product credits

\*\*\* Total of direct and indirect capex including 15% contingency, EPC fees and design post-Class 3

\*\*\*\* Based on total capex and 25,000tpa LHM capacity



**Figure 2:** Engineering Cost Study Opex comparison showing significantly reduced operating costs to generate LHM when compared to conventional Brine and spodumene routes (noting that conventional Brine processing is a two-stage process with lithium carbonate ("LC") produced before additional processing into LHM).

Authorised on behalf of Neometals by Christopher Reed, Managing Director.

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**About Neometals**

Neometals has developed and is commercialising three environmentally-friendly processing technologies that produce critical and strategic battery materials at lowest quartile costs with minimal carbon footprint.

Through strong industry partnerships, Neometals is demonstrating the economic and environmental benefits of sustainably producing lithium, nickel, cobalt and vanadium from lithium-ion battery recycling and steel waste recovery. This reduces the reliance on traditional mine-based supply chains and creating more resilient, circular supply to support the energy transition.

The Company's three core business units are exploiting the technologies under principal, joint venture and licensing business models:

- **Lithium-ion Battery ("LiB") Recycling (50% technology)** - Commercialisation via Primobius GmbH JV (NMT 50% equity). All plants built by Primobius' co-owner (SMS group 50% equity), a 150-year-old German plant builder. Providing recycling service as principal in Germany and commenced plant supply and licensing activities as technology partner to Mercedes-Benz. Primobius targeting first commercial 21,000 tpa plant offer to Canadian company Stelco in the DecQ 2023;
- **Lithium Chemicals (70% technology)** - Commercialising patented ELi™ electrolysis process, co-owned 30% by Mineral Resources Ltd, to produce battery quality lithium hydroxide from brine and/or hard-rock feedstocks at lowest quartile operating costs. Co-funding Pilot Plant trials in 2023 with planned Demonstration Plant trials and evaluation studies in 2024 for potential 25,000tpa LiOH operation in Portugal under a 50:50 JV with related entity to Bondalti, Portugal's largest chemical company; and
- **Vanadium Recovery (100% technology)** - aiming to produce high-purity vanadium pentoxide from processing of steelmaking by-product ("Slag") at lowest-quartile operating cost. Targeting partnerships with steel makers and participants in the vanadium chemical value chain under a low risk / low capex technology licensing business model.

For further information visit [www.neometals.com.au](http://www.neometals.com.au)

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<sup>1</sup> (for full details refer to Neometals ASX announcement headlined "Lithium Chemicals Co-operation Update" released on 3<sup>rd</sup> October 2023).

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