

2 March 2021

## **POSITIVE INITIAL NOVONIX BATTERY RESULTS FOR LAKE'S HIGH PURITY LITHIUM CARBONATE**

- **Positive results returned from initial testing by Novonix (ASX:NVX) for high-performance lithium-ion batteries using Lake's high 99.97% purity lithium carbonate.**
- **Novonix compared commercial product to Lake's lithium product to provide real-world comparisons for Tier 1 battery makers.**
- **Lake's lithium carbonate performing better than commercially available battery grade lithium carbonate in lithium-ion battery cells.**
- **Novonix program to continue for some months to produce cells and batteries at a larger scale.**

Clean lithium developer **Lake Resources NL (ASX:LKE; OTC:LLKKF)** confirms positive results from initial testing by Novonix for the production of NMC622-based lithium-ion battery test cells using samples of Lake's high 99.97% purity lithium carbonate.

Novonix Limited (ASX:NVX; OTCQX:NVNXF) received commercial samples of NMC622-hydroxide precursor from Tier 1 producers, together with samples of Lake's high 99.97% purity lithium carbonate, to conduct a real-world direct comparison of Lake's product into NMC622 batteries and its suitability for the nickel cathode sector.

Lake's high-quality product yielded improved capacity retention and better electrochemical behaviour in coin cells compared to the commercially available product from Tier 1 producers.

Larger scale tests will be conducted using batch-scale synthesis to demonstrate repeatability, homogeneity, and cell characterisation and validation in full lithium-ion wound pouch cells, as part of Novonix's pilot scale cell line facilities in Nova Scotia, Canada. This will enable Lake and its potential partner and customers to make direct comparisons of Lake's lithium product's performance in familiar battery chemistries. Novonix anticipates this testing process to take some months. Lake will update the market as soon as results are available.

The cathode material was tested for electrochemical properties using coin half-cell testing. Powders were characterised using Scanning Electron Microscopy (SEM) and X-ray Diffraction (XRD) to understand morphology and phase purity (see Figure 2). The XRD showed no impurities. Lake's lithium carbonate was used as received and also milled but no appreciable difference was noted in the resultant NMC powders once synthesised. NMC622 was mixed with conducting carbon and binder, cast on to an aluminium foil current collector, dried, punched and assembled into a lithium-ion battery half-cell which yielded similar voltage profiles, improved capacity retention and better electrochemical behaviour compared to the commercially available product from Tier 1 producers.

Novonix Limited (ASX:NVX; OTCQX:NVNXF) provides high precision battery testing equipment to Tier 1 battery makers including Panasonic, CATL, Samsung, SK Innovation, LG Chem, Bosch, Honda and Dyson. Recently, world-renowned researcher in the field of lithium-ion batteries and materials, Prof. Jeff Dahn, announced his return to Novonix as Chief Scientific Advisor, while continuing with Dalhousie University, in a group sponsored by Tesla.

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Novonix also recently completed a successful \$115 million institutional equity raising, highlighting investor confidence in its technology.

Lake's high purity lithium carbonate results have been obtained via a simple flowsheet without any anticipated changes to the operating costs previously forecast in Kachi's Pre-Feasibility Study (refer ASX announcement 30 April 2020). Low impurities are a key factor in determining battery quality and the pricing and acceptance of lithium products. Lake's high purity carbonate offers the potential for premium prices.

**Managing Director Steve Promnitz commented:** *"The results from Novonix demonstrate the high quality of Lake's high purity lithium in batteries and future results are anticipated to reinforce the initial results. This provides electric vehicle makers and battery makers confidence around Lake's product quality, which is particularly important given the increasing demand for a high purity product."*

*"Lake is advancing the Kachi DFS amid a growing focus on sustainability and the need for a responsibly sourced product suitable for the supply chains of leading EV makers. With investor and industry engagement intensifying, Lake is in an excellent position to progress our product and unlock increased value for shareholders."*

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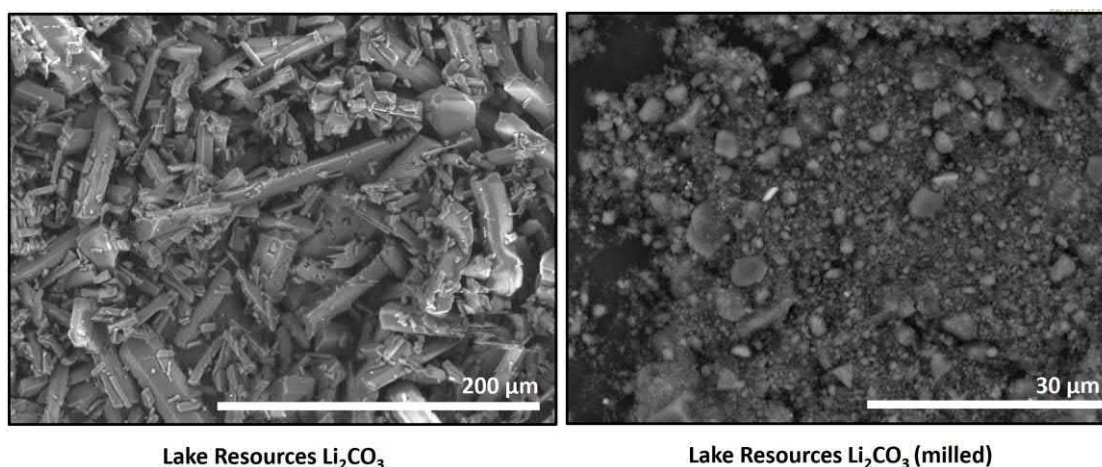
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**Figure 1:** Novonix – Freshly assembled lithium-ion battery coin half-cell with Lake's lithium product

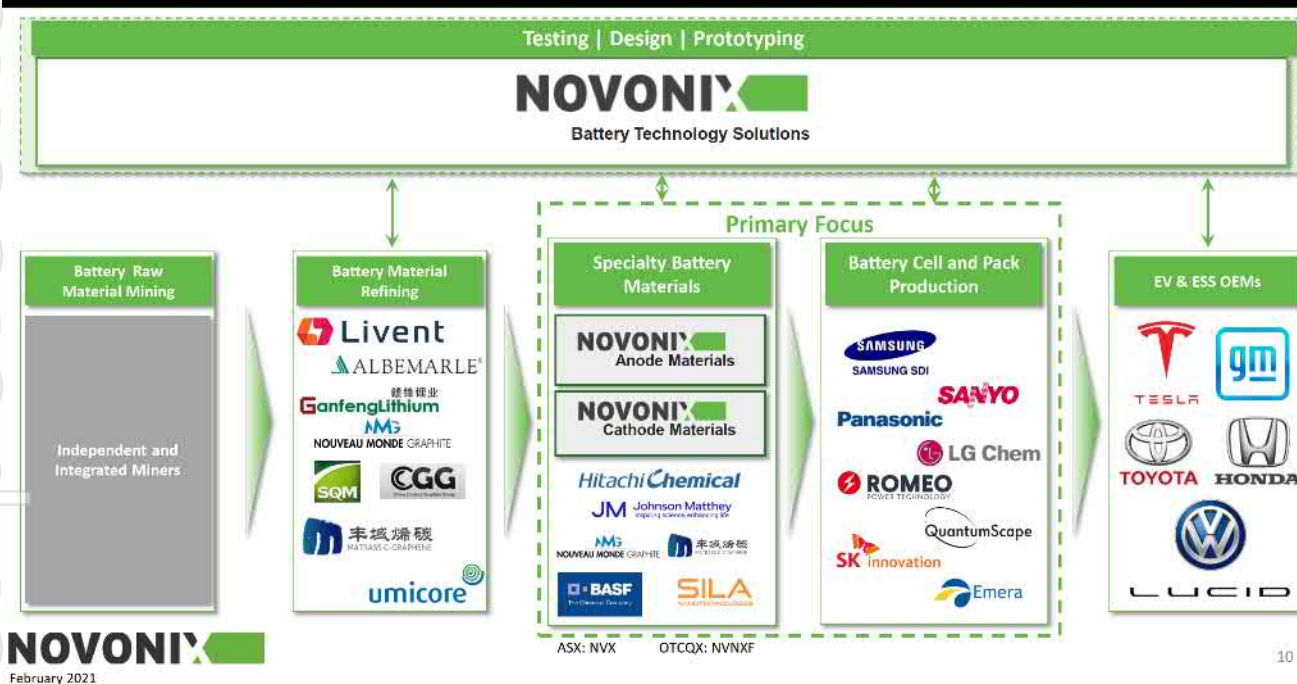


Lake Resources  $\text{Li}_2\text{CO}_3$

Lake Resources  $\text{Li}_2\text{CO}_3$  (milled)

**Figure 2:** Lake's lithium carbonate under SEM imaging showing product as received and milled (pulverised). The XRD shows no impurities. Milling made the product more amorphous but no appreciable difference in the resultant NMC powders once synthesized.

## NOVONIX Plays a Critical Role in the Lithium Ion Battery Value Chain



**Figure 3:** Novonix's view of their role in the lithium-ion battery value chain. Lake's position is in the provision of battery materials.

### About Novonix

Novonix Limited (ASX:NVX, OTC:NVNFX) is an integrated developer and supplier of high-performance materials, equipment and services for the global lithium-ion battery industry with operations in the USA and Canada and sales in more than 14 countries. Novonix's mission is to support the global deployment of lithium-ion battery technologies for a cleaner energy future. For more information on Novonix, please visit the website at [www.novonixgroup.com](http://www.novonixgroup.com).

## About Lake Resources NL (ASX:LKE OTC:LLKKF) –

### Clean high purity lithium using efficient disruptive clean technology

Lake Resources NL (ASX:LKE, OTC: LLKKF) is a clean lithium developer utilising direct extraction technology for production of sustainable, high purity lithium from its flagship Kachi Project within the Lithium Triangle in Argentina among other projects covering 200,000 ha. This direct extraction method delivers a solution for two rising demands of electric vehicle batteries – high purity battery materials to avoid performance issues, and more sustainable, responsibly sourced materials.

1. **Clean-Tech:** Efficient, disruptive, cost-competitive technology using well-known water treatment re-engineered for lithium (not mining). Technology partner, Lilac Solutions Inc, supported by Bill Gates led Breakthrough Energy fund and MIT's The Engine fund.

2. **High Purity:** 99.97% purity lithium carbonate samples never previously delivered at scale in a cost competitive manner for a premium price (refer ASX announcement 9 January 2020 and 20 October 2020).

3. **Sustainable /ESG:** Far smaller environmental footprint than conventional methods, that returns virtually all water (brine) to its source without changing its chemistry, avoiding "water politics" in arid environments for a better outcome for local communities.

4. **Prime Location, Large Projects:** Flagship Kachi project in prime location among low cost producers with a large lease holding (70,000 ha) and expandable resource (4.4 Mt LCE) of which only 20% is used for 25 years production at 25,500tpa (JORC Resource: Indicated 1.0Mt, Inferred 3.4Mt, refer ASX announcement 27 November 2018). Pre-feasibility study by tier 1 engineering firm shows large, long-life low-cost operation (refer ASX announcement 28 April 2020).

An innovative direct extraction technique, based on a well-used ion exchange water treatment method, has been tested for over 18 months in partnership with Lilac Solutions, with a pilot plant module in California operating on Kachi brines and has shown 80-90% recoveries. Battery quality lithium carbonate (99.97% purity) has been produced from Kachi brine samples with very low impurities (refer ASX announcement 20 October 2020). The first samples of high purity (99.97% purity) battery quality lithium carbonate is being tested in a NMC622 battery by Novonix. Hazen will produce further samples for downstream supply chain participants and off-takers.

This method of producing high purity lithium can revolutionise and disrupt the battery materials supply industry as it's scalable, low cost, and delivers a consistent product quality.

A Definitive Feasibility Study (DFS) is underway at the Kachi Project with Hatch providing engineering, which is aimed for completion in Q1 next year, together with other related studies. Lake is currently funded through to the construction financing phase, anticipated to be mid next year, with production of 25,500 tpa lithium carbonate scheduled for H1, 2024.

Lake's other projects include the Olaroz and Cauchari brine projects, located adjacent to major world class brine projects in production or construction, including Orocobre's Olaroz lithium production and adjoins the impending production of Ganfeng Lithium/Lithium Americas' Cauchari project. Lake's Cauchari project has shown lithium brines over 506m interval with high grades averaging 493 mg/L lithium (117-460m) with up to 540 mg/L lithium. These results are similar to lithium brines in adjoining leases and infer an extension and continuity of these brines into Lake's leases (refer ASX announcements 28 May, 12 June 2019).

For more information on Lake, please visit <http://www.lakeresources.com.au/home/>