



Scalable Technologies for
Next-generation Batteries

CSE: LIM | OTCQB: LIMFF | FSE: 5ZO

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WHO WE ARE



- Li-Metal is a **vertically integrated battery materials innovator**, developing lithium metal and lithium metal anode production technologies for use in **next-generation batteries**
- Our production methods are more sustainable than existing products and enable lighter, more energy-dense and safer batteries.

Next-generation batteries 101

Next-generation batteries:

- are the successor to conventional lithium-ion batteries; and
- will enable longer ranges (i.e. higher energy storage) and better performance (+30% to 100%)



Lithium Metal



**Lithium Metal
Anodes**

EXISTING INDUSTRY VS. LI-METAL



CHALLENGES

Limited Domestic Supply



Niche Feedstock Requirements



Chlorine Gas Emissions



High CAPEX/OPEX



LI-METAL SOLUTION



Modular processing allows for scalable deployment in North America / Europe



Flexible input, allowing for more widely produced lithium carbonate to be used as feedstock



Eliminates the 5 tonnes of chlorine gas currently produced for every tonne of lithium units. Can use recycled lithium units.



Switching from Li Chloride, eliminates high CAPEX and OPEX needs of chlorine gas treatment

OUR BUSINESS: LITHIUM METAL



Molten Salt Membrane Electrolysis

Applied potential splits lithium carbonate into technical grade lithium metal and off-gas.

Li_2CO_3
Lithium Carbonate
Recycled or virgin lithium carbonate powder is dissolved in the electrolyte

Technical Grade Lithium Metal
Refined further or sold for use in alloys and specialty chemicals

Battery Grade Metal
Metal upgraded to battery-grade using proprietary refining process



Right Place, Right Feed

Leveraging a widely available chemical used in conventional Li-ion batteries. Optionality to produce both technical and battery grade.



No Chlorine Gas

Air emissions, primarily oxygen and CO₂ (introduced during lithium carbonate production), can be captured.



Low Cost

No complicated off-gas treatment equipment and operating costs—cheaper pre-cursor.



Scalable Production

Scalable production technology in 10t unit increments, with fewer permitting challenges.



Patent-Pending Technology

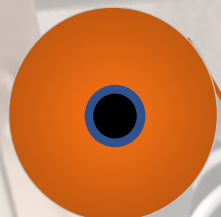
Continuously expanding IP portfolio.

OUR BUSINESS: LITHIUM METAL ANODES



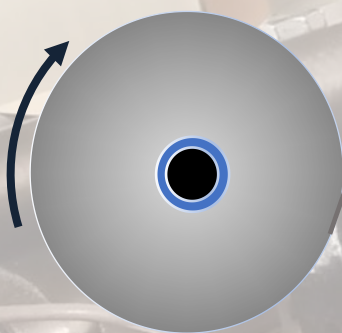
Current Collector Roll

Wide-format micron-scale material is unwound from the substrate roll



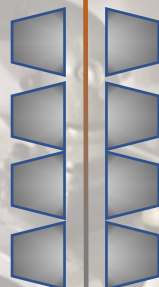
Product Roll

The completed anode wound onto product roll and packaged in argon gas for battery production, shipping or storage.



Treatment Zone

Lithium metal and combinations of other materials / treatments are applied in single step



Cost-Effective and Scalable

Underlying technology is industrially proven in other applications to produce millions of square metres of material per year at minimal cost.



Flexible

Broad range of thicknesses, widths and material requirements can be accommodated to tailor the products to each battery format and technology and minimize lithium usage.



Upgradable

Ability to produce composite materials allows unique combinations of cost and electrochemical performance properties to be achieved; will enable new materials/products like pre-lithiation of silicon.



Patent-Pending Technology

Continuously expanding IP portfolio.

OUR FACILITIES



**Anode Pilot Facility
(Rochester)**

- Roll-to-roll anode material production equipment (deposition coating equipment)
- Allows for thousands of metres of lithium anode material to be produced per year intended for commercial customer use and auto qualification
- Operational and shipping products to customers as of January 2022



**Advanced Anode Materials Lab
(Toronto)**

- Rapid prototyping, development and testing capability for new anode materials
- Bench-top PVD and 100+ Channels of battery cycling capacity
- Additional advanced analytical capabilities to be added in 2023



**Lithium Metal Pilot Facility
(Toronto)**

- Metal production piloting facility to demonstrate lithium metal production at an industrially-relevant scale
- Process and equipment development space in wholly-occupied 14,000 sq-ft space
- Facility operational in H2 2022



Thank You

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PRESIDENT

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