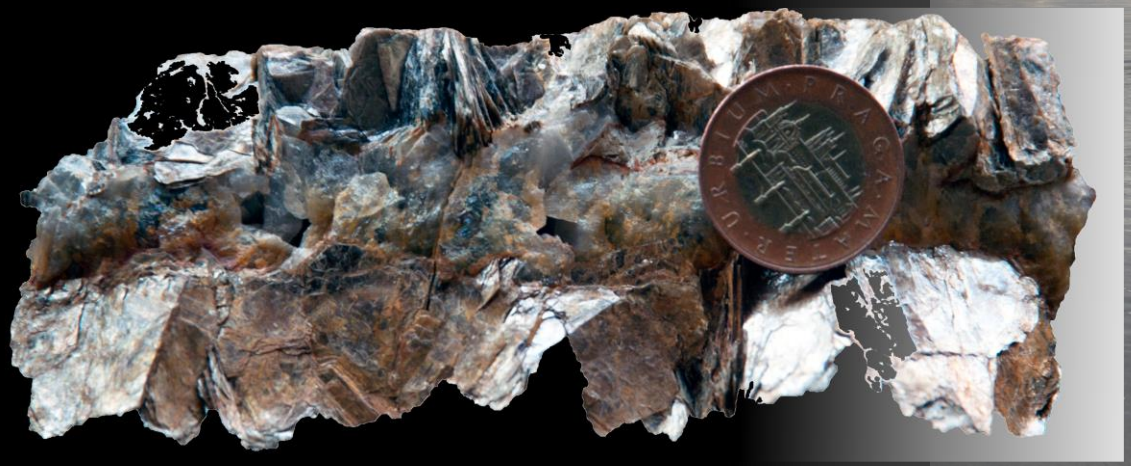
“Lithium batteries are the biggest change in energy management since cavemen learned to control fire”
George Bauk, 2016

Drivers for corporate change in the lithium industry

Adrian Griffin
Managing Director
Lithium Australia NL



Lithium Australia NL

The only company in the world with the capability of processing all lithium silicates without roasting

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COMPETENT PERSON'S STATEMENT

The information in this report that relates to reporting of Exploration Results is based on and fairly represents information and supporting documentation prepared by Adrian Griffin, a member of the Australasian Institute of Mining and Metallurgy. Mr Griffin is a shareholder in, and managing director of, LIT and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration. He is qualified as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. *Mr Griffin consents to the inclusion in this report of the matters based on information in the form and context in which it appears.*

The reporting of mineral species is generic in nature, and the term 'lepidolite' – as it is applied to mineral species, and not necessarily locality names – includes mineral species widely considered to be part of the solid solution series of polylithionite/trilithionite, of which the Competent Person considers lepidolite to be approximately a median member. It is also acknowledged that material processed from Lepidolite Hill has bulk compositions tending towards trilithionite, although the rubidium concentration is outside the range generally expected in such minerals.

Similarly, the term 'zinnwaldite' has been applied to minerals approximating the accepted composition of zinnwaldite but with variations tending towards lepidolite. This terminology is considered acceptable by the Competent Person.

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What's drives historic costs of hard rock lithium?

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ANTIQUATED INSTALLED PROCESSING TECHNOLOGY

- All established processes roast then leach (burning energy is burning dollars)
- To cover the energy cost ore/concentrates must be high-grade
- The starting point is spodumene at 6-7% Li_2O
- Concentrates must be coarse to achieve kiln retention

THE ULTIMATE IMPACT

- High operating cost
- Reduced reserves/resources
- Relegates other ore types to waste dumps and tailings

REGARDLESS THE SMART MONEY IS INVESTING IN HARD ROCK – WHY?

- Anticipation of rising prices
- Anticipating the breakthrough that eliminates energy costs
- A realization that processing of lower-grade concentrates will become reality
- Awaiting a process that can handle fine-grained concentrate feeds

The industry needs a paradigm shift in the lithium production cost profile

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From concept to commercialization

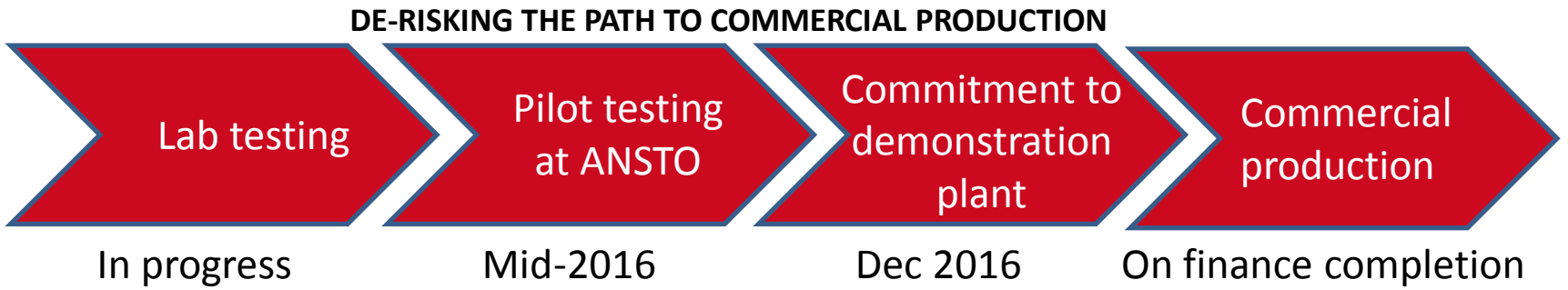
Lithium Australia NL

Lithium Australia plans to commercialize disruptive processing technology in the lithium industry to deliver:

- a lower cost option for the production of Li chemicals from hard rock sources
- a competitive means of processing fine grained lithium concentrates
- a commercial opportunity for off-spec spodumene concentrates
- the only commercial means of processing a wide range of lower-grade lithium mineral concentrates.

Commercialization has commenced with an Innovations Connections Grant under the Entrepreneur's Programme run by the Department of Industry and Science (Australian federal government). Expenditure conditions, under the terms of the grant, provide for partnering with ANSTO Minerals (a division of the Australian Nuclear Science and Technology Organisation). Work continues at private labs in Australia, USA and Israel. Lithium Australia is also seeking funding from the Western Australian state government.

Lithium Australia has made significant advances towards identification of the reaction mechanisms and conditions under which metals can be extracted from silicates. This has permitted widespread application to silicate minerals including spodumene, petalite and the lithium micas.



Commercialization will result in Lithium Australia establishing a number of processing hubs with locations targeted around growing resource bases in Australia, North America and Europe.

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The opportunity lies in finding the solution

Lithium Australia NL

NEW BATTERY TECHNOLOGY IS THE BIGGEST INNOVATION IN POWER MANAGEMENT SINCE THE INDUSTRIAL REVOLUTION

AND IT STARTS WITH MINERALS

BUT HOW ARE WE POSITIONED TO FEED THE INSATIABLE DEMAND?

- The supply chain is constipated
- The most accessible lithium is expensive
- Down-stream processing plants are antiquated
- Not even the new spodumene producers have the answer

THE SOLUTION

- Improved efficiency for existing lithium sources
- Technology that transforms sub-commercial lithium sources into ore
- Processes that are flexible with respect to:
  - Physical properties of ore and concentrates
  - Chemical characteristics of feed materials
  - A wide range of mineralogy

The solution is the Sileach™ process
100% owned by Lithium Australia

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Current cost profile – Sileach™ can provide an option

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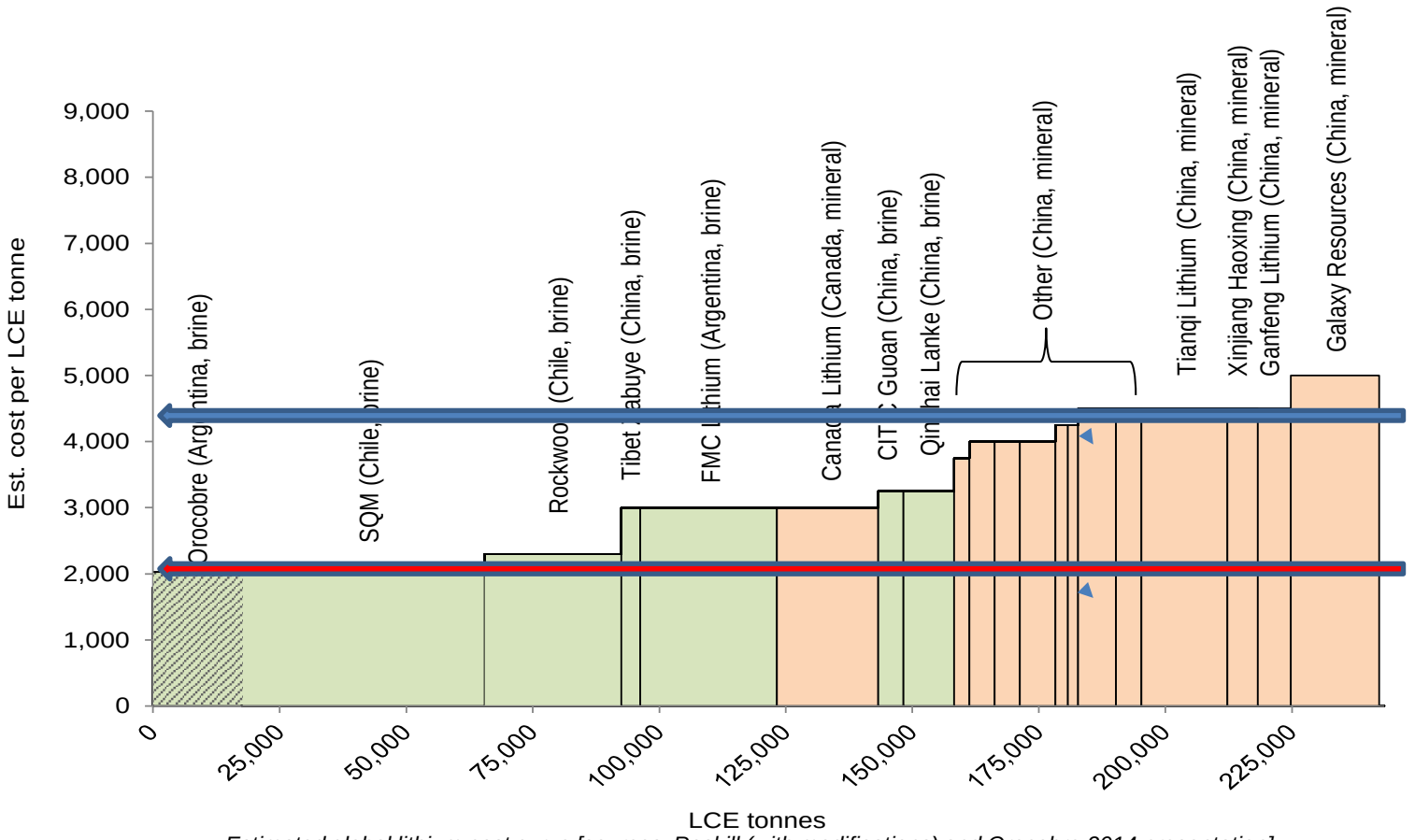

Estimated global lithium cost curve [sources: Roskill (with modifications) and Orecobre 2014 presentation].

Current hard rock

The Sileach™ advantage

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Why Sileach™?

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THE SILEACH™ PROCESS PROVIDES THE BEST OPTIONS FOR HARD ROCK

- High recovery from most lithium bearing silicates
- Zero energy footprint with low carbon emissions
- Does not require coarse concentrates
- Potential for high by-product credits
- High recovery from currently sub-commercial feed stocks
- Battery chemical capability
- High by-product credit and product diversity

SILEACH™ IS A HYDROMETALLURGICAL PROCESS

- Strong similarities to base metal recovery systems
- Simple chemical steps
- Accomplished at atmospheric pressure
- Adaptable to all silicate minerals

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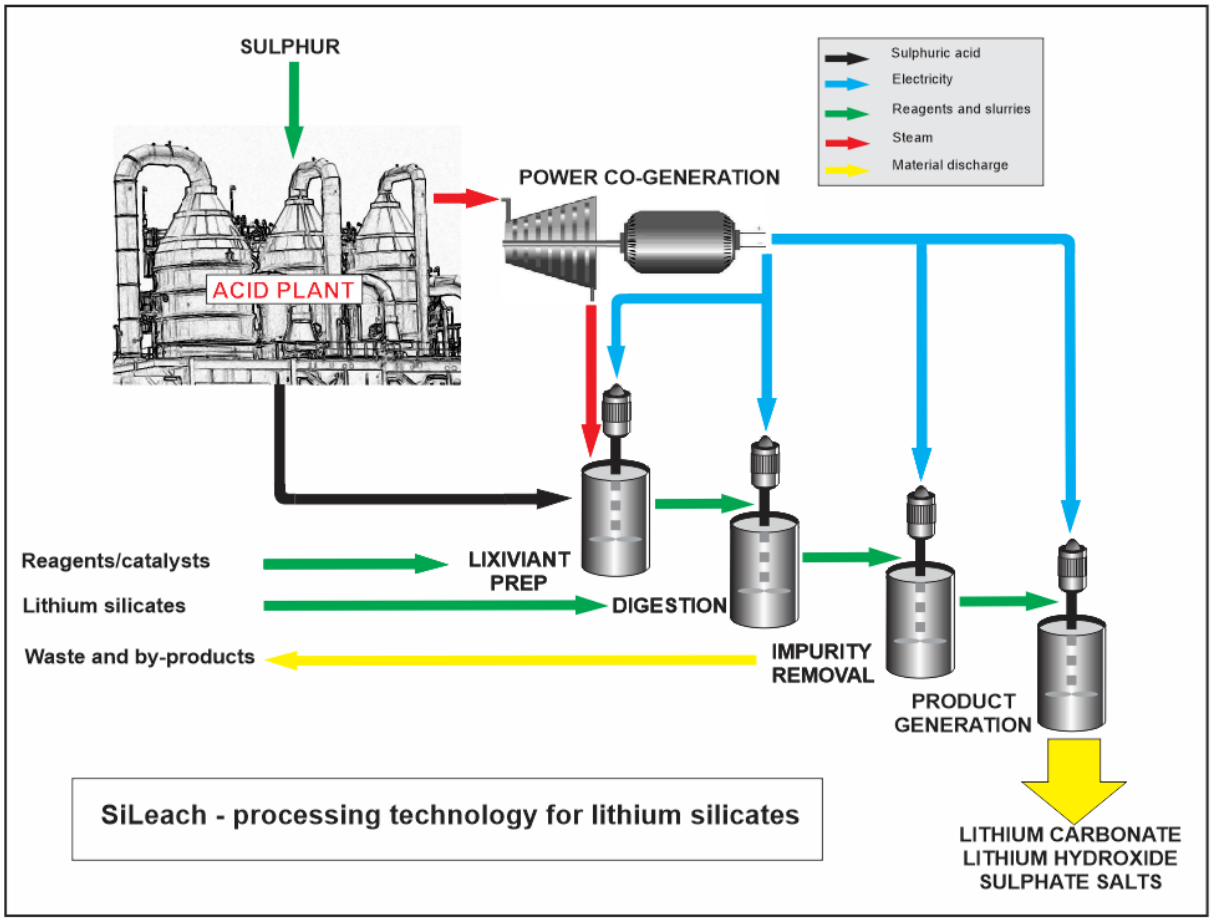
Inside the Sileach™ process

MATCHING CHEMISTRY TO MINERALOGY

The Sileach™ process success resides in identifying the chemical reactions required to release metals from silicates. The process is easily adapted to silicates containing lithium or other metals of value. The process is energy efficient and has the potential to capitalize on high by-product credits.



SiLeach - processing technology for lithium silicates

Sileach™ is 100% owned by Lithium Australia NL. The process was initially designed to recover lithium from spodumene (the most commonly produced hard rock lithium concentrate). Subsequent testing proved the flexibility of the process, which has since been adapted to recovery of lithium from all lithium silicates.

The process derives all of its energy requirements from the production of the lixiviant, that has a sulphuric acid base (produced in a sulphur burning acid plant) with additional reagents added in accordance with the specific mineral chemistry of the feed material.

The lixiviant can be tailored to the mineral feed to achieve optimum results. A range of mineral chemistries has been processed generally with lithium extractions around 90% with residence times around 4 hours.

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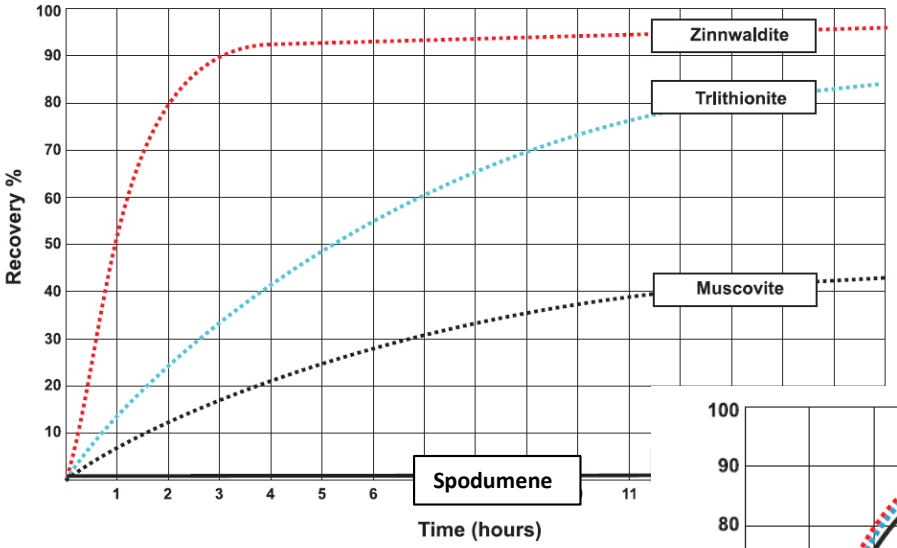
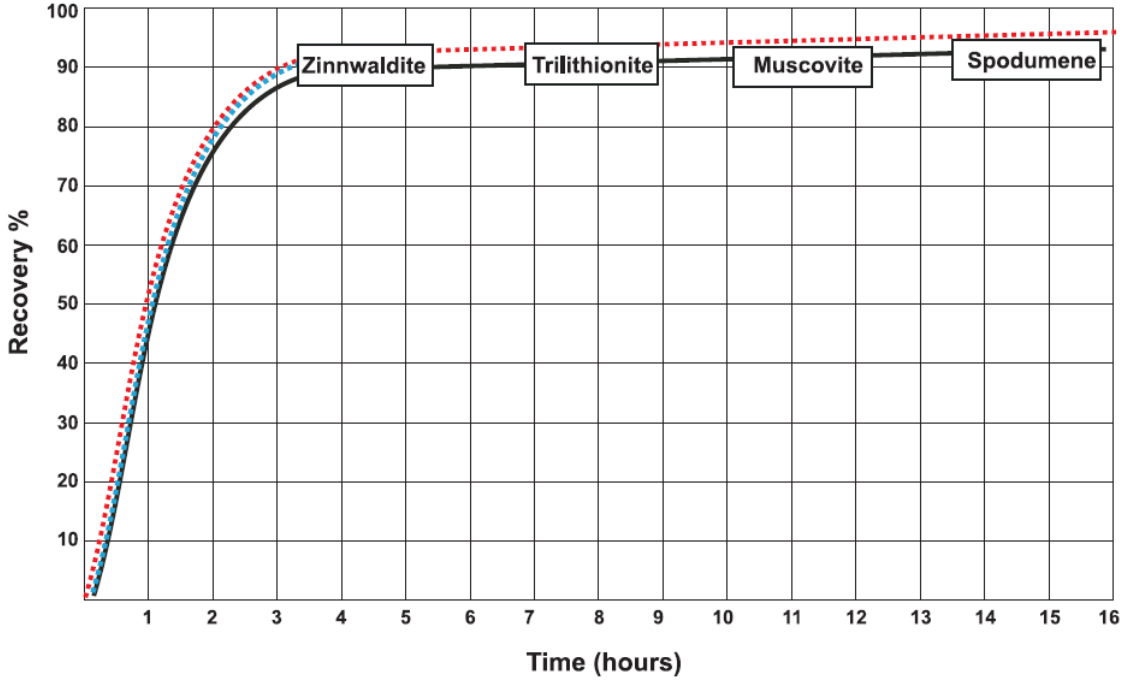
The Sileach™ Advantage



Lithium bearing mineral species have a range of leach performances in sulphuric acid, from very reactive in the case of zinnwaldite, to completely unreactive in the case of spodumene.

Bespoke lixiviants used in the Sileach™ process optimize the dissolution curves for most silicates, allowing spodumene to achieve the processing performance of the less refractory lithium silicates.



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Company snapshot

LITHIUM AUSTRALIA (LIT) – A UNIQUE FOCUS ON LITHIUM

BOARD OF DIRECTORS

George Bauk (non-executive chairman)
Expert in specialty metals, particularly rare earths – project management, marketing and financing.

Adrian Griffin (managing director)
Exploration, production, mine management.

Bryan Dixon (non-executive director)
Corporate, finance, mine development.

ASX ticker: LIT
ACN 126 129 413

- 229 M Ordinary Shares
- 14 M Partly Paid Shares
- 22 M Unlisted Options
- 11 M Performance Rights
- $5.9M Cash at bank 30 April 2016

- **Market cap. $68M (9 May 2016 – source Yahoo)**

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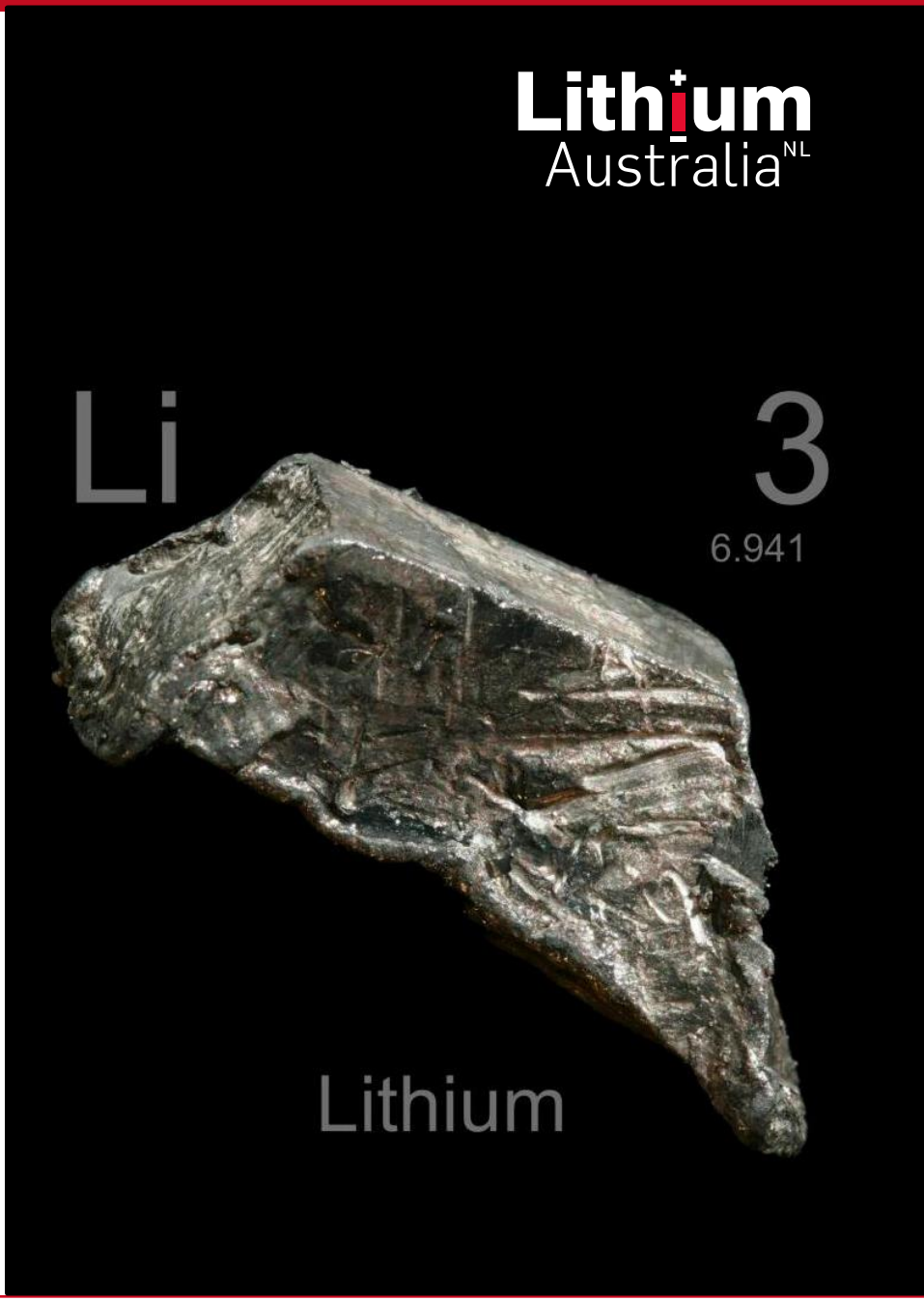

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Lithium Australia – a global value proposition

The only company with lithium extraction processes for all silicate minerals without the requirement of expensive roasting

Lithium Australia holds the key to expanding global lithium inventories without the requirement for exploration

First-mover advantage

LIT is the leader in development of processes for the production of battery-grade lithium carbonate/hydroxide from silicates. Assets in North America and Australia with diversification from lithium micas and clays, to a range of more conventional lithium silicates.



Opportunities previously overlooked

- Below commercial spec spodumene
- Tailings
- Current mine-waste discharge streams
- Primary lithium mica deposits

Alliances with Pilbara Minerals, Focus Minerals, Tungsten Mining, Venus Metals

Escalating demand for lithium

- Revolutionary innovations in transport
- New renewable-energy storage solutions
- Emergence of smart-grid systems

Alix JV (in the largest lithium clay province)

- Lithium clay evaluation
- Exploration potential
- Springboard into lithium-hungry North America market

Australian projects

- Pilgangoora, Greenbushes, Kalgoorlie, Seabrook, Bynoe and Ravensthorpe
- Graphite assets – planned divestment

FURTHER INFORMATION

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