

Commitment to the Future

# Developing new sources of commercial lithium supply

Corporate Update

September 2018



**LEPIDICO**



# About Lepidico

- Lepidico (ASX: LPD) is an ASX-listed lithium exploration and development company with a management team experienced in project and business development
- Lepidico's strategic objective is to become a fully integrated lithium business from mine to battery grade lithium chemical
- Lepidico is differentiated by its clean-tech L-Max<sup>®</sup> process technology that extracts lithium and recovers valuable by-products from the less contested lithium-mica minerals
- Phase 1 Plant Project to be located in Sudbury, Canada; currently in Full Feasibility Study – final engineering due for completion Dec 2018, Study results due March 2019
- Quality lithium-mica mine feed to be sourced from Portugal, Australia and Canada – currently drilling Youanmi, Alvarroes drilling to start October 2018
- Funded to complete Feasibility Study with A\$4.9M cash at 30 June 2018 and no debt – entitlements offer launched to fund new development and growth opportunities

Li

$\text{Na}_2\text{SiO}_3$

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

\$\$\$

$\text{K}_2\text{SO}_4$

# Corporate Snapshot

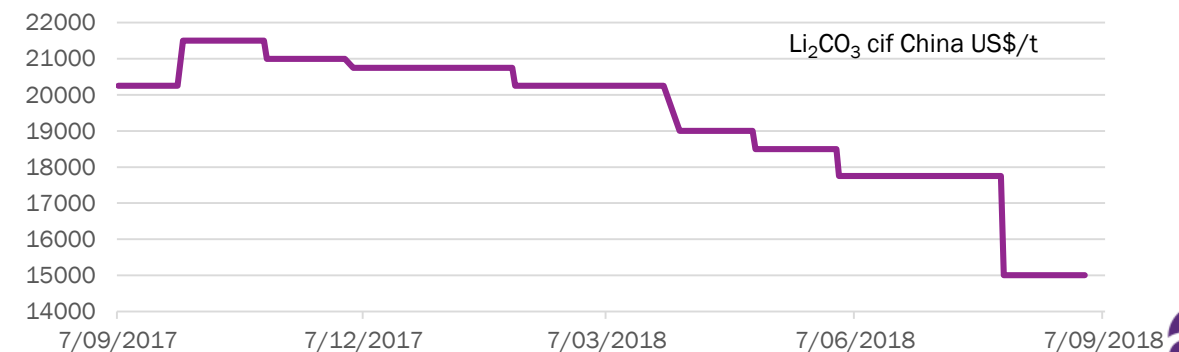
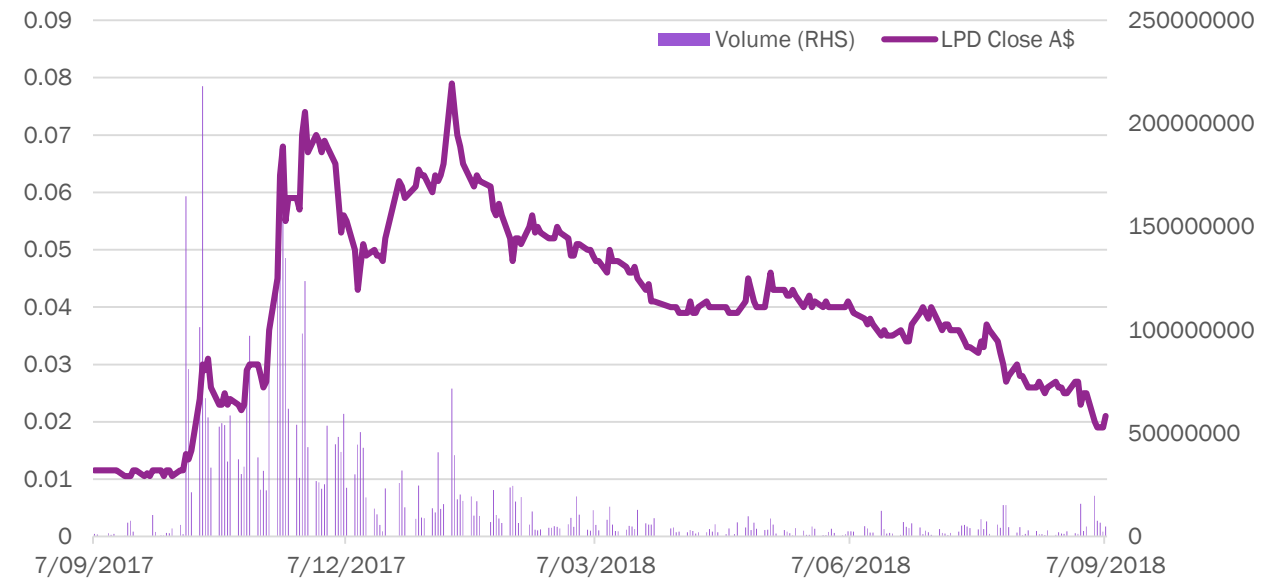
## Lepidico Ltd (ASX:LPD) Board of Directors

Gary Johnson	Chairman, Non-executive	Metallurgist
Joe Walsh	Managing Director	Mining Engineer
Tom Dukovcic	Director Exploration	Geologist
Mark Rodda	Non-Executive Director	Lawyer
Cynthia Thomas	Non-Executive Director	Banking & finance
Brian Talbot	Non-Executive Director	Mine Operations

## Capital Structure

Market Capitalisation	\$56 M (@ 1.9¢; 4 September 2018)	
Shares on issue	2,925,140,151	
Options (unlisted)	110 M, 1.5c – 9.1c	
Major Shareholders (10 November 2017)	Galaxy Resources	11.64%
	Strategic Metallurgy	11.51%
	JP Morgan Noms Aust	3.86%
	Perth Capital	1.54%
	Bacchus Capital Advisers	1.40%
	<b>Top 5</b>	<b>29.85%</b>
	<b>Top 20</b>	<b>42.30%</b>

## LPD share price/volume & Lithium Carbonate Price (below)



Source: CommSec, Benchmark Mineral Intelligence

# Directors and Senior Management Team



Mr. Gary Johnson

MAusIMM, MAICD  
Chairman

Gary has over 30 years experience in the mining industry as a metallurgist, manager, owner, director and managing director possessing broad technical and practical experience of the workings and strategies required by successful mining companies.



Mr. Joe Walsh

BEng, MSc  
Managing  
Director

Joe is a resources industry executive and mining engineer with over 25 years experience working for mining companies and investment banks. Joe also has extensive equity market experience and has been involved with the technical and economic evaluation of many mining assets and companies around the world.



Mr. Tom Dukovcic

BSc (Hons), MAIG,  
MAICD  
Director Exploration

Tom is a geologist with over 25 years experience in exploration and development. He has worked in diverse regions throughout Australia, including the Yilgarn, Kimberley, central Australia and northeast Queensland. Tom is a Member of the Australian Institute of Geoscientists and a Member of the Australian Institute of Company Directors.



Mr. Mark Rodda

BA, LLB  
Non-Executive  
Director

Mark is a lawyer with 20 years experience in the resources sector including the management of local and international mergers and acquisitions, divestments, exploration and project joint ventures, strategic alliances, corporate and project financing transactions and corporate restructuring initiatives.



Ms. Cynthia  
Thomas

B.Com, MBA  
Non-Executive  
Director

Cynthia has over 30 years of banking and mine finance experience, and is currently the Principal of Conseil Advisory Services Inc. ("Conseil"). Cynthia previously worked with Bank of Montreal, Scotiabank and ScotiaMcLeod in the corporate and investment banking divisions. Cynthia holds a Bachelor of Commerce degree from the University of Toronto and a Masters in Business Administration from the University of Western Ontario.



Mr. Brian Talbot

BA, LLB  
Non-Executive  
Director

Brian is the shareholder representative of Galaxy Resources Ltd, which holds a 11.9% interest in the Company. Brian is Galaxy's Chief Operating Officer and brings over 25 years' experience in both mine management and processing of lithium ores. Prior to Galaxy he was with Bikita Minerals in Zimbabwe, where he was instrumental in expanding plant throughput and increasing metallurgical recovery.



Ms. Shontel  
Norgate

B.Bus  
Chief Financial  
Officer

Shontel is a finance executive with over 20 years commercial experience in the resources industry including debt and equity finance, financial reporting, project management, corporate governance, commercial negotiations and business analysis



Mr. Peter Walker

General Manager

Peter is a metallurgist with more than 30 years' experience in the design, commissioning and operation of processing plants and general management of operations. Peter has managed several feasibility studies encompassing a range of commodities and countries.



# Asset Overview

**Alvarrões Lepidolite Mine, Operating**

**Mine expansion & concentrator in Feasibility Study**

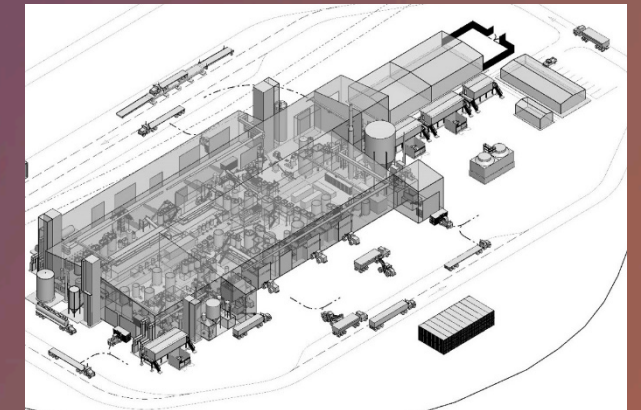
**Inferred Resource 1.5Mt @ 1.1% Li<sub>2</sub>O**  
**Ore offtake agreement with Grupo Mota**  
**Drilling October 2018**



**Separation Rapids lithium deposit 9.6Mt @ 1.31% Li<sub>2</sub>O**  
**Lepidolite offtake LOI with owner Avalon Advanced Materials**



**Phase 1 L-Max<sup>®</sup> Plant Sudbury, Canada**  
**In Feasibility Study**



**Strategic Alliance Mt Cattlin & L-Max<sup>®</sup> Synergy Initiative**

**Lepidico Registered Office & Technical Capability, Perth**  
**L-Max<sup>®</sup> Pilot Plant development**  
**Pre-development**



**Youanmi JV LPD 80% Earn-in on Youanmi Li-rights, Lepidolite rich pegmatite**  
**Drilling September 2018**



# 1 for 7 Renounceable Entitlements Offer\*

- 1 for 7 renounceable rights issue to raise up to \$8 million
- Attractively priced at 1.9 cents per share – 24% discount to previous closing price and 30% to the 30 day VWAP
- Eligible shareholders will receive one free listed option with every two new shares – with an exercise price of 4.5 cent and 2 year term
- Shareholders can trade their rights and apply for additional shares
- Directors intend to participate
- Funds will be used for new development and growth opportunities:
  - Development and operation of L-Max<sup>®</sup> pilot plant to support Phase 1 Plant prospective offtake/finance due diligences
  - Product research & development to include: amorphous silica, SOP fertiliser, caesium brine and residue for environmental remediation, plus other opportunities
  - Exploration & Resource development: Alvarrões drilling October 2018 and Youanmi drilling September 2018
- 6 ▪ Full-scale L-Max<sup>®</sup> plant scoping study: emphasis on location and scale

## Timetable

Prospectus lodged with ASIC & ASX	3 Sept 2018
Notice sent to Share & Option holders	3 Sept 2018
Ex date, Rights start trading	6 Sept 2018
Record Date for determining Entitlements	7 Sept 2018
Prospectus sent out to Shareholders &	11 Sept
Rights stop trading	18 Sept
Shares quoted on a deferred settlement basis	19 Sept
Closing Date	25 Sept
ASX notified of under subscriptions	27 Sept
Issue date/Shares entered into Shareholders' security holdings/Deferred settlement trading ends	1 Oct 2018
Quotation of New Shares and New Options	2 Oct 2018

\*Reference: ASX Announcement, Renounceable Entitlements Offer to Fund New Development and Growth Opportunities, 3 September 2018

# Lithium mica feed sources

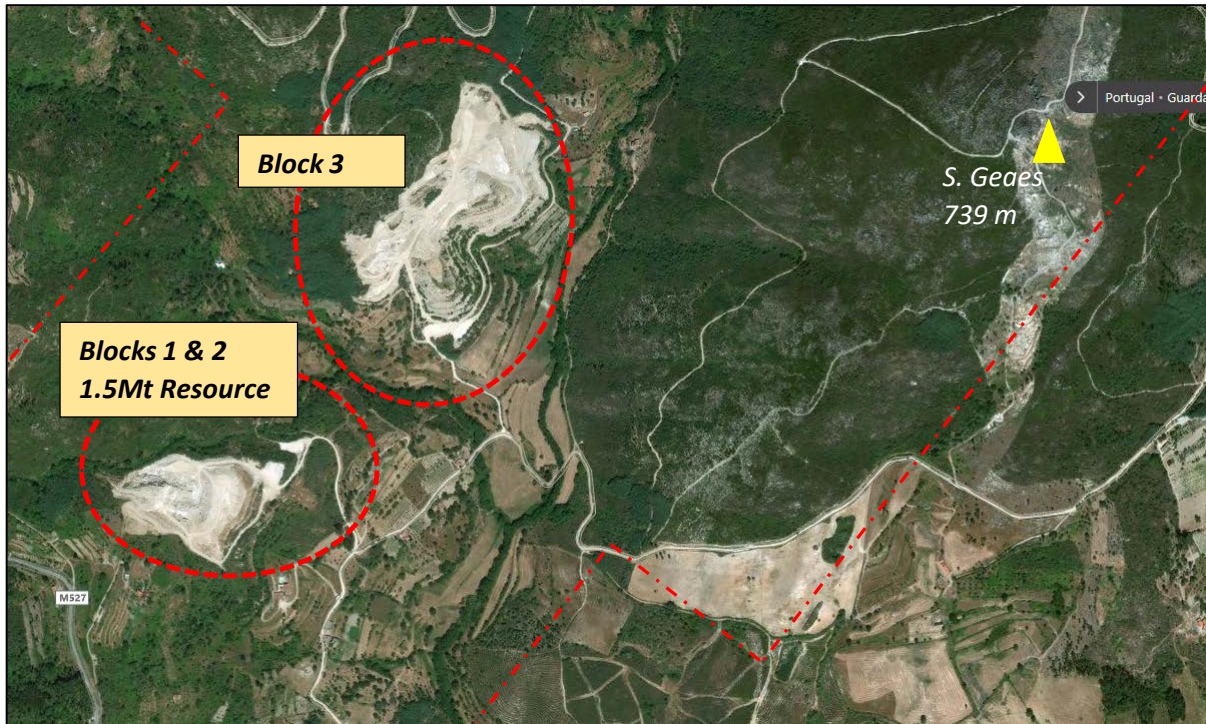
# Alvarrões Lepidolite Mine\*

- Ore access agreement with Grupo Mota over the operating Alvarrões lepidolite mine, Portugal, which currently supplies c. 1.8%  $\text{Li}_2\text{O}$  concentrate to the ceramics industry
- Inaugural Inferred Mineral Resource estimate 1.5M t @ 1.1%  $\text{Li}_2\text{O}$  (December 2017) covers just 15Ha; mineralized system open down dip and along strike
- Estimated 10 years' lepidolite concentrate feed for Phase 1 L-Max<sup>®</sup> Plant Project
- Mining rates to increase to c. 140,000tpa of mill feed, sufficient to supply 30,000t pa of lithium mica concentrate to the planned Phase 1 L-Max<sup>®</sup> Plant in Sudbury
- Concentrator by-products: marketable quality feldspar and quartz concentrates may be produced for ceramics use, in addition to the primary lithium mica concentrate
- Co-disposal of small quantities of plant fines with mine waste being evaluated; potential to negate the requirement for a tailing storage facility



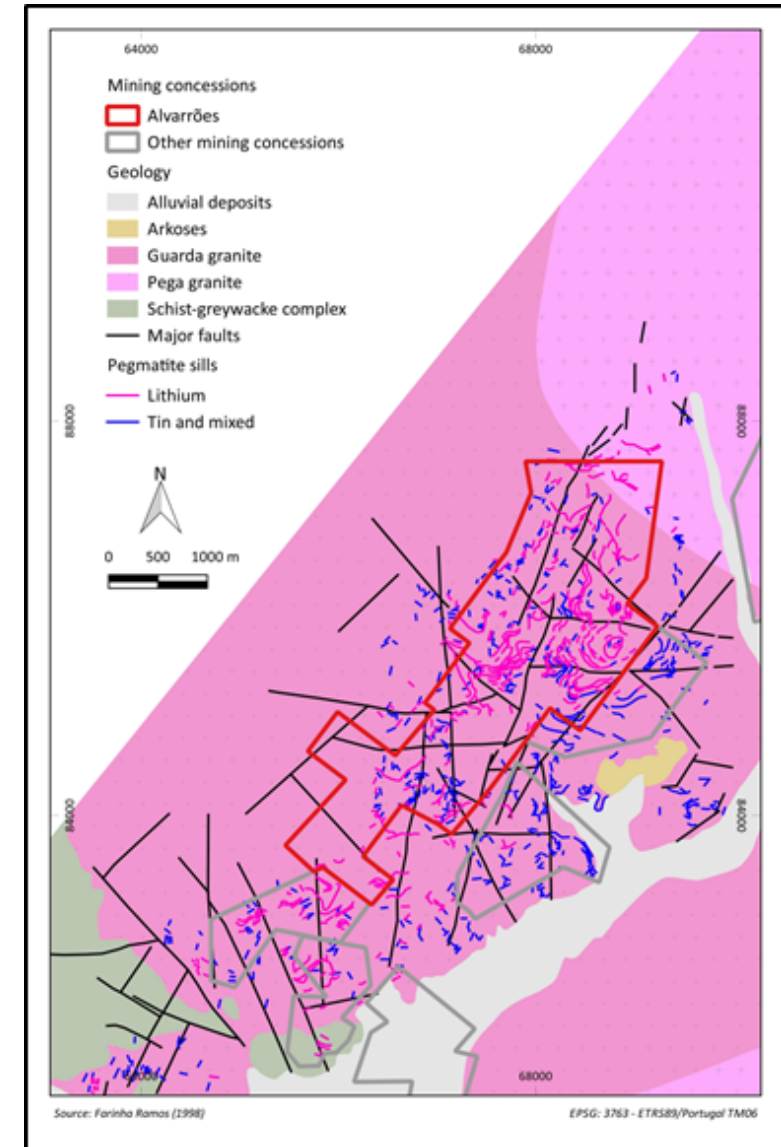


# Alvarrões Lepidolite Mine



- Mining lease covers 634Ha; numerous pegmatite sills yet to be drill tested
- Exploration target 3M to 5M t grading 1.0% to 1.5%  $\text{Li}_2\text{O}$ ; multiple stacked lepidolite mineralised pegmatite sills 1m to 4m thick exposed over a strike of more than 1km
- Infill Resource drilling on Blocks 1 & 2 to commence October 2018\*
- Exploration drilling on new targets to commence October 2018\*

9 \* Subject to funding



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# Lithium mica concentrator

## Modular mill and flotation plant, ideally suited to Alvarrões

- Capacity of 150,000tpa ore feed, capable of producing +30,000tpa lithium mica concentrate for Phase 1 L-Max® Plant
- Outotec cPlant benefits:
  - reduced EPC project costs compared to a conventional flotation plant;
  - up to 20% lower capital investment;
  - requires 30% less labour resources;
  - 95% of installation and pre-commissioning done prior to delivery;
  - minimal civil engineering work required; and
  - Modular, ease of relocation
- cPlant being evaluated for integration with the Phase 1 Plant Project feasibility study during the September 2018 quarter
- Includes additional circuit to produce feldspar and quartz concentrates from Alvarrões



Image source: Outotec. cPlant Flotation showing modular construction .



# Mineral Resource Development

## Youanmi\*

- Youanmi property hosts a 4 km belt of outcropping lepidolite bearing pegmatites
- Lepidico can earn up to 80% ownership of lithium rights from owner Venus Metals.
- 1,000m RC drilling programme testing three target areas, on schedule for completion early September 2018, assay due mid/late September
- Initial drill results confirm:
  - Target 1 – 4 to 5m thick lepidolite-bearing pegmatite over 250m of strike
  - Target 2 – returned intercept of 9m containing 20% lepidolite
- L-Max<sup>®</sup> amenability testwork to commence on completion of first drill phase





# Mineral Resource Development

## Separation Rapids\*

- Separation Rapids is one of the largest “complex-type” lithium pegmatite deposits in the world, owned 100% by Avalon Advanced Materials Inc.
- NI43-101 PEA completed on the Petalite Mineral Resource (opposite)
- Excellent recoveries and high-specification, **99.88% battery grade lithium carbonate produced** in L-Max<sup>®</sup> testwork programme
- L-Max<sup>®</sup> to **maximize lithium mineral Resource potential** (plus by-products)
- Outcropping Lepidolite rich zone of c. 2.0Mt incorporated into Mineral Resource estimate following 2017 drill programme
- Latest work indicates **>20% of the lithium content of the existing Mineral Resource is present in lithium micas**
- Letter of Intent between Lepidico and Avalon Advanced Materials Inc. (TSX: AVL and OTCQX: AVLNF) for an **integrated Lepidolite mining and lithium carbonate production partnership** in Canada

\*Reference: ASX Announcement, Lithium Alliance with Avalon Advanced Materials Inc, 6 February 2017

# Note: Li<sub>2</sub>O is total lithium oxide without distinction between contributions by petalite, Li-mica or lepidolite



Class	Tonnes	Li <sub>2</sub> O#	Ta <sub>2</sub> O <sub>5</sub>	Cs <sub>2</sub> O	Rb <sub>2</sub> O
	(Mt)	(%)	(ppm)	(%)	(%)
Measured	4.03	1.32	60	0.017	0.343
Indicated	3.97	1.26	70	0.025	0.362
Measured plus Indicated	8.00	1.29	60	0.021	0.352
Inferred	1.63	1.42	80	0.016	0.360
<b>TOTAL</b>	<b>9.63</b>	<b>1.31</b>	<b>63</b>	<b>0.020</b>	<b>0.353</b>

# L-Max<sup>®</sup> lithium plant

# The L-Max<sup>®</sup> & S-Max<sup>™</sup> Advantage

- ✓ The Australian Patent Office declared L-Max<sup>®</sup> to be “novel, inventive, industry applicable and patentable” for production of lithium carbonate
- ✓ S-Max<sup>™</sup> provisional patent application made May 2018 for production of a range of silica compounds; technology integrable with L-Max<sup>®</sup>
- ✓ L-Max<sup>®</sup> leaches lithium from non-conventional and relatively uncontested mineral sources; lithium micas and phosphates, and achieves high extraction rates
- ✓ L-Max<sup>®</sup> reagents and operation have straightforward occupational health and safety, and environmental characteristics
- ✓ L-Max<sup>®</sup> utilises common use, inexpensive reagents & is energy efficient
- ✓ L-Max<sup>®</sup> utilises conventional equipment and straightforward processes at atmospheric pressure and modest temperature
- ✓ By-products include potassium sulphate fertiliser (SOP), sodium silicate/amorphous silica & sodium sulphate; potentially Cs, Rb, Ta & Sn
- ✓ Scalable technology: scoping study for a full scale plant will contemplate output of 15,000t to 25,000t pa LCE



Lepidolite



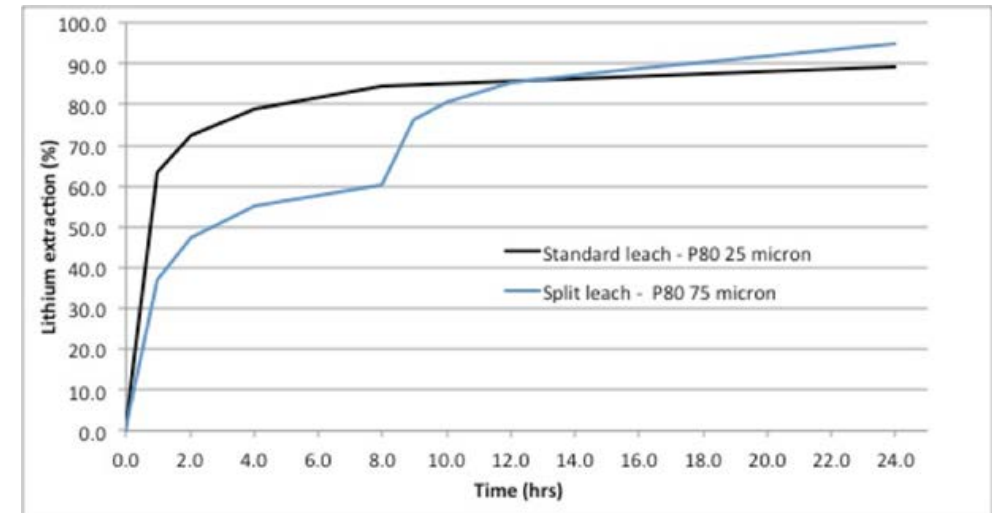
Zinnwaldite



Amblygonite

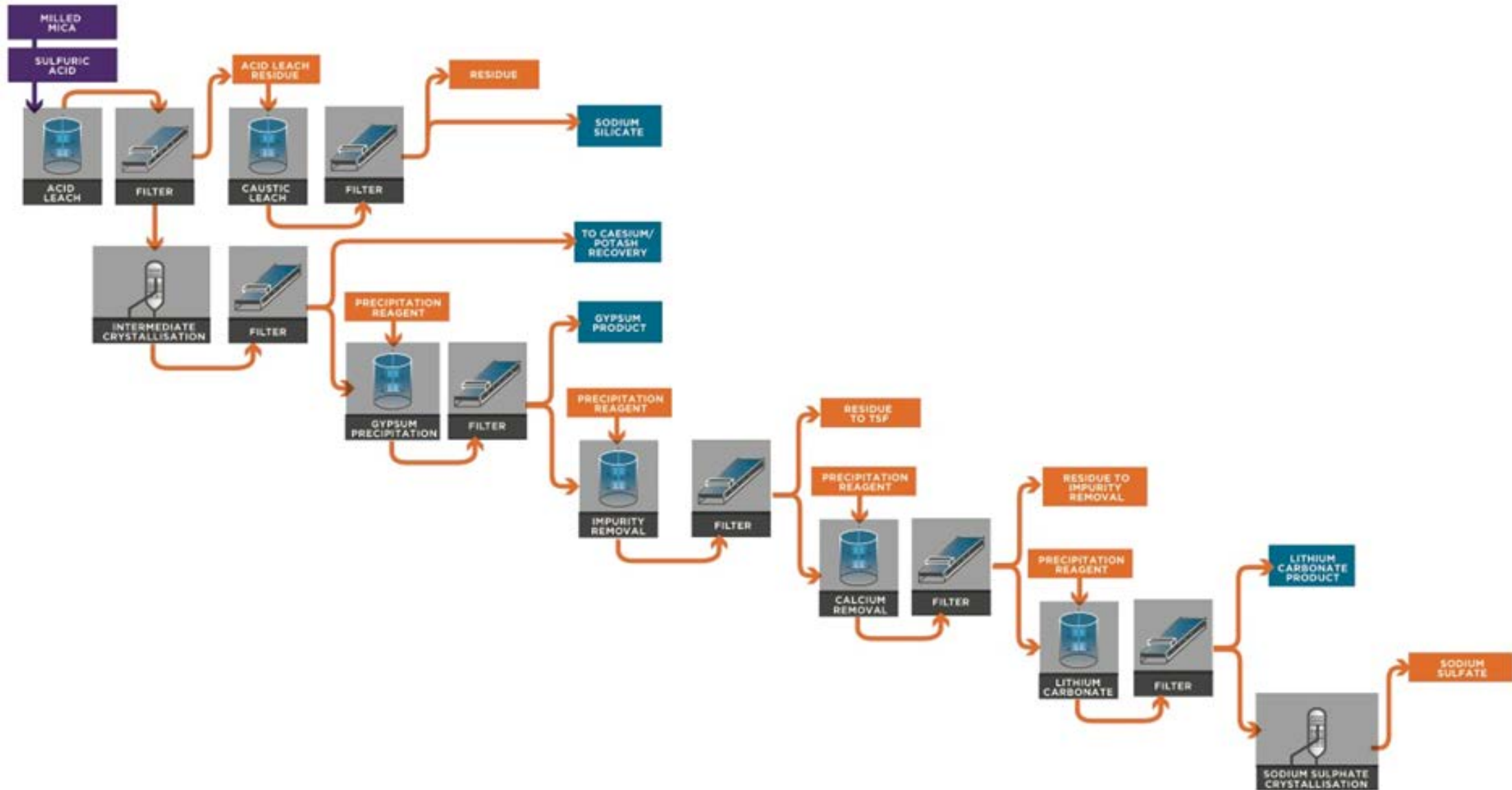


## S-Max<sup>®</sup> Improved leach kinetics





# L-Max<sup>®</sup> - 100% Owned by Lepidico



# Phase 1 L-Max<sup>®</sup> Plant Feasibility Study

- Key metrics for the Feasibility Study scope\* are:
  - Design plant throughput rate increased from 3.6tph to 7.0tph of lithium-mica concentrate, Q3 2018
  - Battery grade lithium carbonate equivalent (LCE) production of 2,500tpa nominal, with debottlenecked capacity of 5,000t pa LCE
  - Average C3 Costs of US\$1,000-2,000/t after by-product credits including amortisation of development capital
  - PFS Capex of US\$40-45M (3,000tpa LCE case, February 2017, incl. 20% contingency)
  - Optimised engineering and final capital estimate December Quarter 2018
  - Commercial production target 2020

\*ASX Announcement 27 February 2017. The assumptions set out above and elsewhere in this announcement contain reference to broad indicative plant operating parameters (Parameters) for the purpose of the Feasibility Study (FS) which have been developed through scoping level work and subsequent PFS work. For the avoidance of doubt, investors are advised that the Parameters expected to be adopted for the DFS do not constitute a production forecast or target in relation to mineral resources associated with any project owned by the Company. The Company wishes to expressly clarify that any references in this announcement or the PFS to annual production rates relate to scoping and planning parameters and are not a production target. The Company cautions investors against using any statements made in either this announcement or the PFS which may indicate or amount to the reporting of a production target or forecast financial information, as a basis for making any investment decisions about shares in the Company. The primary purpose of disclosing the FS Parameters is to inform on the scope of work for the study and provide an estimate of the intended scale of a potential future Phase 1 Plant.

## Project Planning Key Metrics

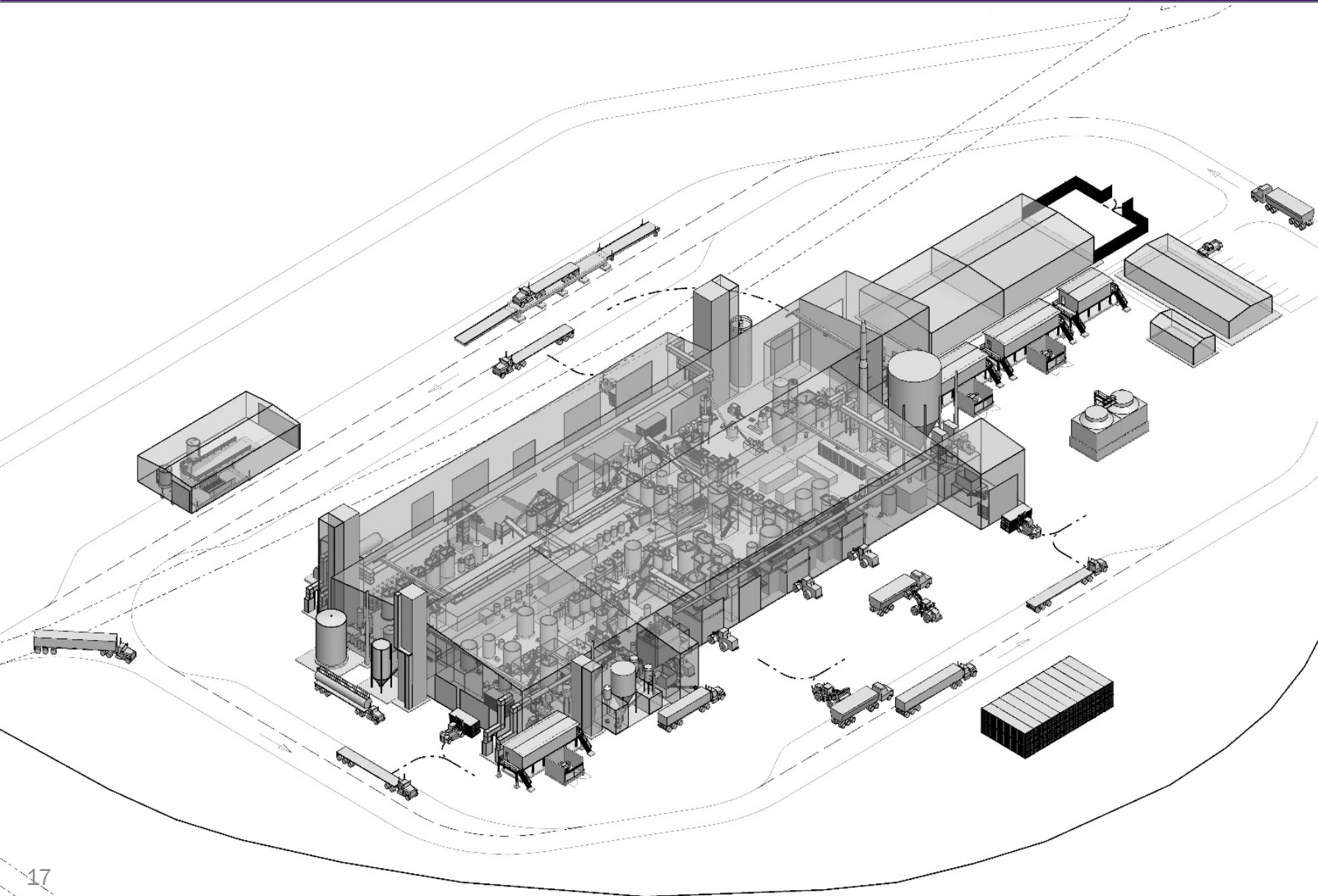
Key Parameter	Key Metric
Lithium Carbonate (>99.5%) Production	3,000 tpa
SOP (>95% K <sub>2</sub> SO <sub>4</sub> ) Production	3,000-4,000 tpa
Sodium Silicate (40wt% solution at SiO <sub>2</sub> :Na <sub>2</sub> O ratio of 3.22) Production	40,000-50,000 tpa
Caesium (as metal contained in formate); Ore dependent	10-100 tpa
Tantalite Con (30% Ta <sub>2</sub> O <sub>5</sub> ); Ore dependent	20-25 tpa
Li-Carbonate C1 cost after by-products credits	<=US\$0/t
Li-Carbonate C3 cost after by-product credits	US\$1,000-2,000/t

## Expected Operating Costs

Item	US\$/t of Concentrate Processed (current prices)
Concentrate purchase	350
Inbound consumables logistics	148
Consumables FOB	286
Processing costs other	186
Sales, marketing, and outbound logistics	55
General and administration	104
<b>Total Unit Cost</b>	<b>1,130</b>



# Phase 1 L-Max<sup>®</sup> Plant Site Layout



- Location: Sudbury, Canada close to established infrastructure including power, water, gas and rail
- Hydro-power & optimized logistics minimises carbon footprint
- Local abundance of key reagents: sulfuric acid and lime
- Close to markets for bulk by-products: silicate products and SOP fertilizer
- On-site residue storage
- Capacity-cost trade-offs being undertaken: key equipment sized for 5,000t – 6,000t pa LCE production\*

\*Reference: ASX Announcement 22 December 2017.



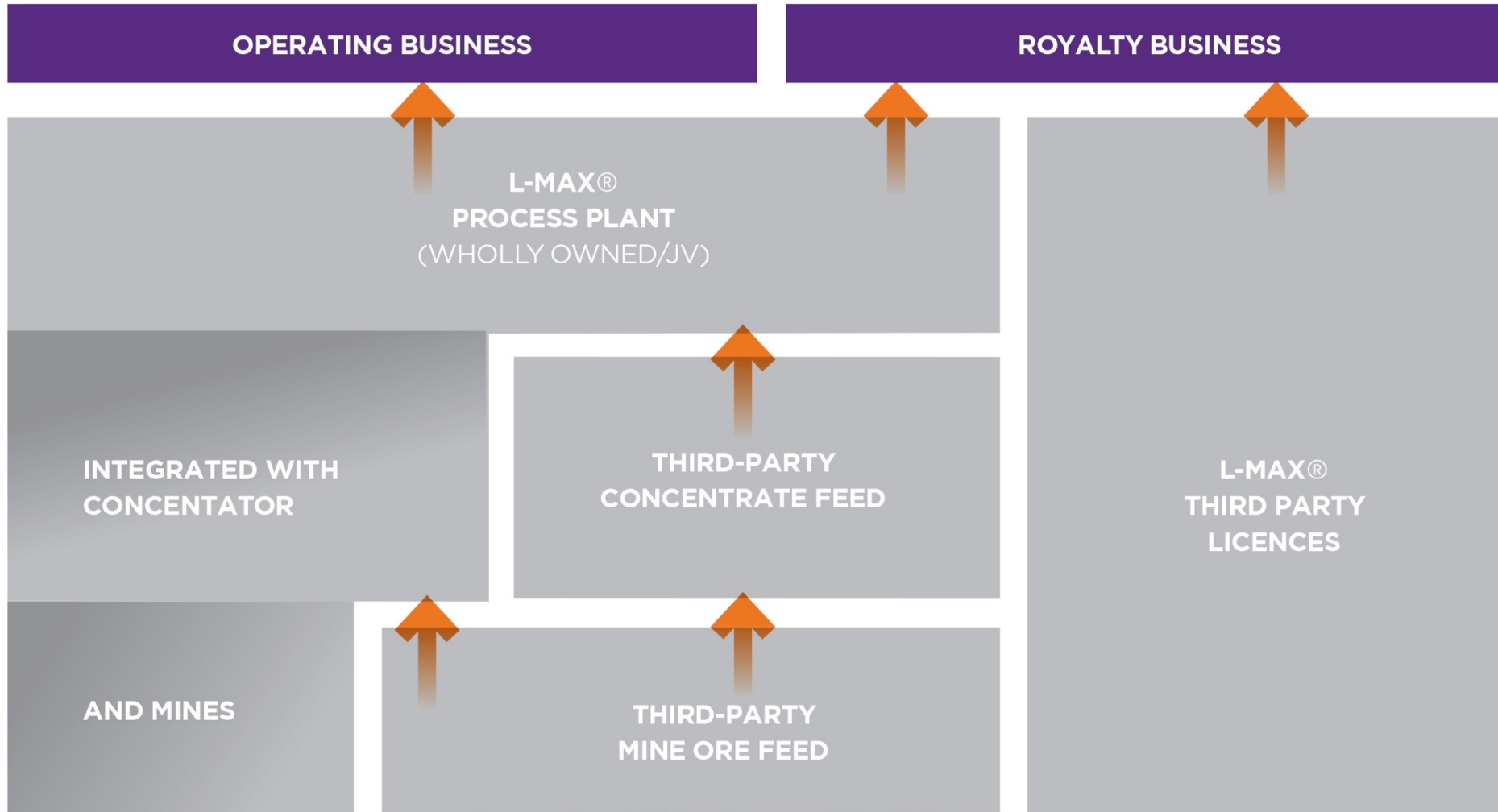
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# Phase 1 L-Max<sup>®</sup> Pilot Plant

- Process design completed for a 15kg per hour L-Max<sup>®</sup> pilot plant
- Development to commence, subject to funding, October 2018 – operation to commence April 2019
- Development capital A\$3M, operating cost for R&D trial A\$1.5M – expenditure eligible for R&D tax refund (43%)
- Rationale for pilot plant development:
  - Demonstrate L-Max<sup>®</sup> technical viability using like for like equipment employed to that for the Phase 1 Plant (mini-plant used laboratory equipment)
  - Reduces scale-up 10-fold, down to 240 times at nominal throughput of 3.6tph for Phase 1 Plant (480 times at 7.0tph)
  - Opportunity for prospective Phase 1 Plant offtake/finance partners to due diligence L-Max<sup>®</sup> in operation once Feasibility Study results are known
  - Provide material for further product development of: amorphous silica, SOP fertiliser, caesium brine and environmental remediation residue; other products may be added and assessed
  - Provide data for optimisation of Phase 1 Plant operating parameters

# Business Model

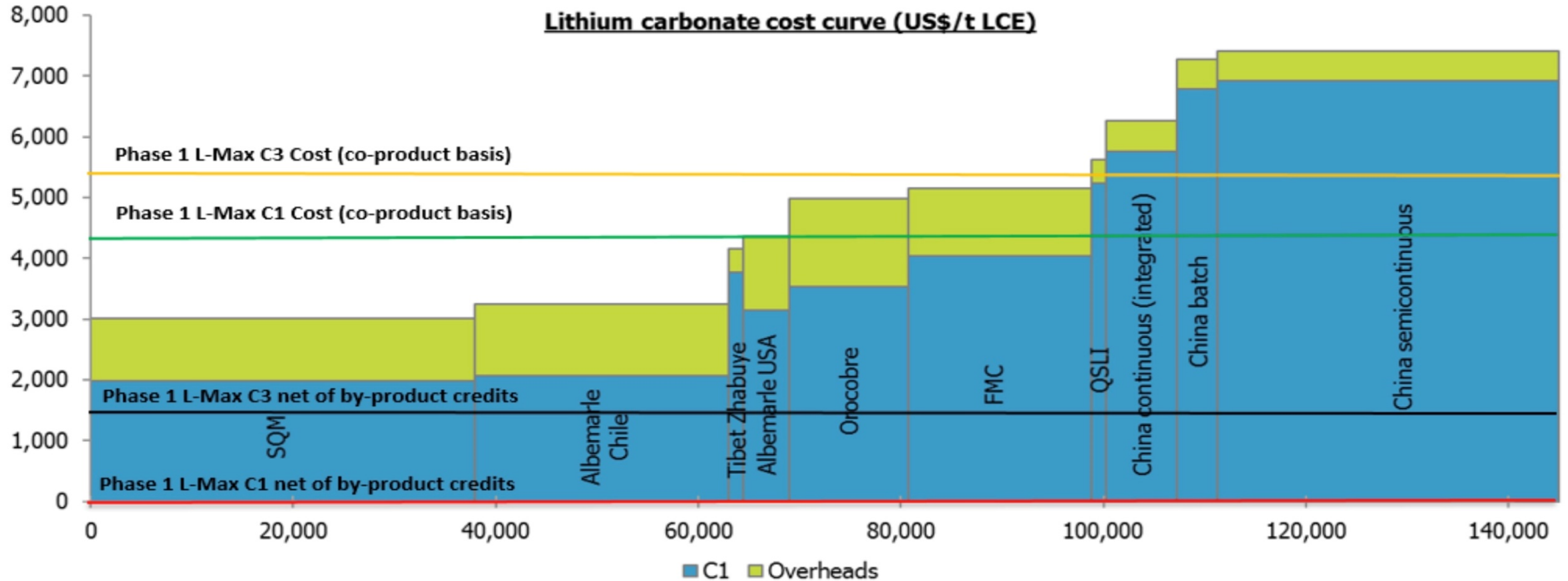


# Lithium industry context



# Peer Analysis

Phase 1 L-Max<sup>®</sup> Plant is targeted to be favourably placed on the global cost curve\*



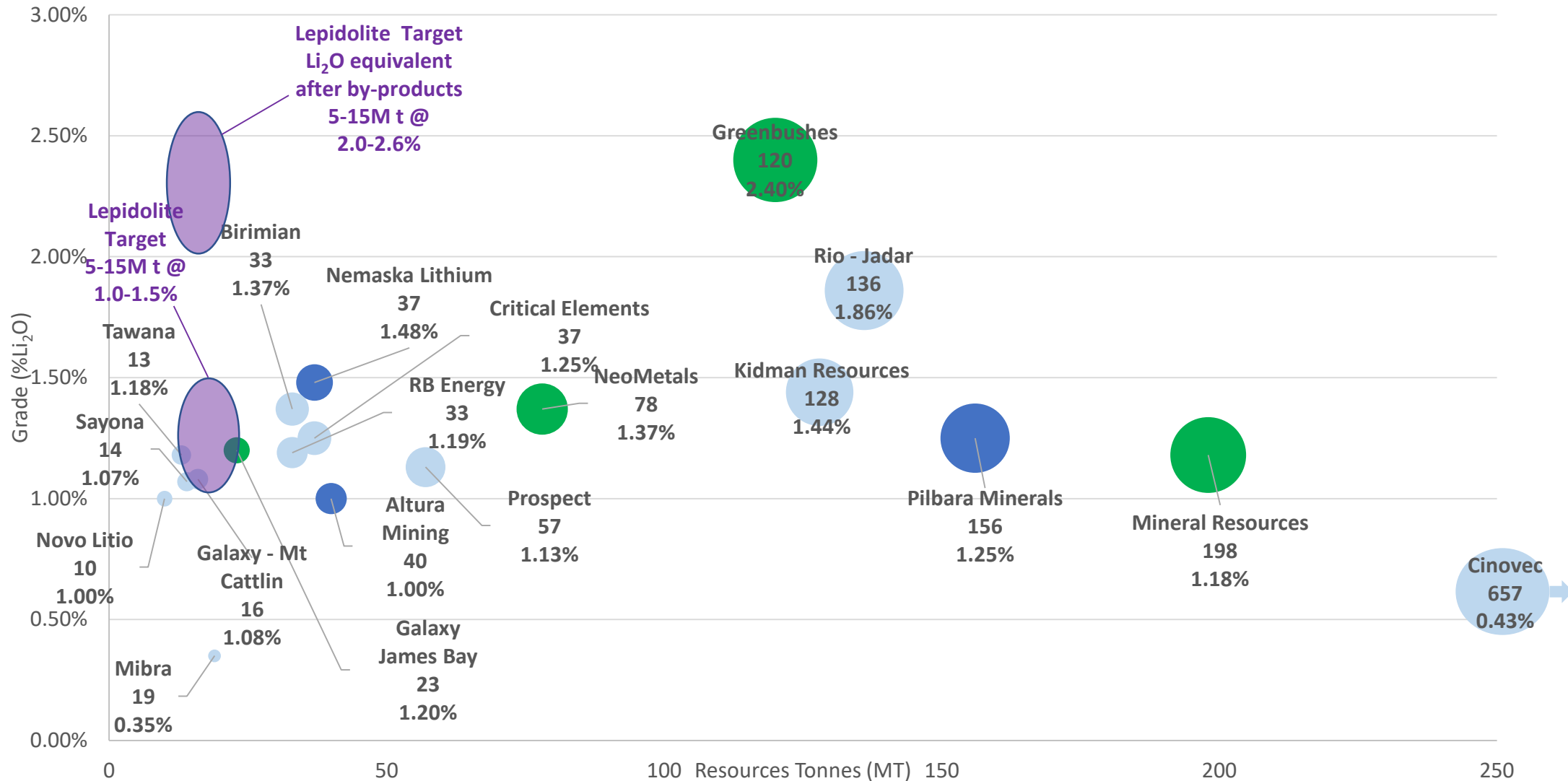
\*Lithium Carbonate Cost Curve 2016 co-product basis (Source: Roskill). Ref: ASX Announcement "Positive Phase 1 L-Max<sup>®</sup> Plant Pre-Feasibility Study", 27 February 2017

# Lithium Carbonate specification

Product	Producer				
	Lepidico	SQM	FMC Lithium	Rockwood Lithium	Sichuan Tianqi
Li <sub>2</sub> CO <sub>3</sub> (% min)	99.9	99.2	99.5	99.8	99.5
Impurities					
SO <sub>4</sub> (ppm)	134	300	1000	500	800
Na (ppm)	13	600	500	650	250
K (ppm)	14	50	10	-	10
CaCO <sub>3</sub> (ppm)	140	250	1000	400	125
Fe (ppm)	9	-	5	-	20

Source: Lepidico mini-plant trial February 2017, company websites

# Hard Rock Mineral Resource Context



Source: Company data, Lepidico targets

# Strategy summary...

- ...to fast track the business to free cash flow generation, demonstrate the commercial viability of L-Max<sup>®</sup> and become a globally significant, vertically integrated lithium chemical producer through the value chain from mine to battery grade lithium chemical.
- This will be achieved by leveraging the proprietary L-Max<sup>®</sup> technology to process concentrates from high-quality lithium mica Resources; and
- maintaining a focus on high-return, strategically located, sustainable developments in low risk jurisdictions.
- Success will provide a new supply solution for the dramatic projected demand growth in lithium chemicals.





# Important Notice

This presentation has been prepared by the management of Lepidico Ltd (the 'Company') for the benefit of brokers, analysts and investors and not as specific advice to any particular party or person.

The information is based on publicly available information, internally developed data and other external sources. No independent verification of those sources has been undertaken and where any opinion is expressed in this document it is based on the assumptions and limitations mentioned herein and is an expression of present opinion only. No warranties or representations can be made as to the origin, validity, accuracy, completeness, currency or reliability of the information. The Company disclaims and excludes all liability (to the extent permitted by law), for losses, claims, damages, demands, costs and expenses of whatever nature arising in any way out of or in connection with the information, its accuracy, completeness or by reason of reliance by any person on any of it.

Where the Company expresses or implies an expectation or belief as to the success of future exploration and the economic viability of future projects, such expectation or belief is based on management's current predictions, assumptions and projections. However, such forecasts are subject to risks, uncertainties and other factors which could cause actual results to differ materially from future results expressed, projected or implied by such forecasts. Such risks include, but are not limited to, exploration success, commodity price volatility, future changes to mineral resource estimates, changes to assumptions for capital and operating costs as well as political and operational risks and governmental regulation outcomes. For more detail of risks and other factors, refer to the Company's other Australian Securities Exchange announcements and filings. The Company does not have any obligation to advise any person if it becomes aware of any inaccuracy in, or omission from, any forecast or to update such forecast.

## Competent Person Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr Tom Dukovcic, who is an employee of the Company and a member of the Australian Institute of Geoscientists and who has sufficient experience relevant to the styles of mineralisation and the types of deposit under consideration, and to the activity that has been undertaken, to qualify 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 Dukovcic consents to the inclusion in this report of information compiled by him in the form and context in which it appears.



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Creative Resources Leadership

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