

# Creating a Global Leader in the Development of Lithium Chemicals from Lepidolite

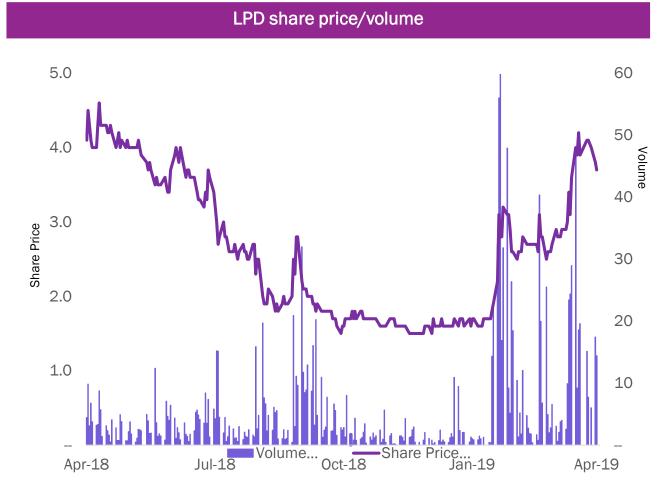
- Lepidico (ASX: LPD) and Desert Lion (TSXV: DLI) propose to merge to create a global leader in the development of lithium chemicals from lepidolite
- The merger is consistent with Lepidico's strategic objective to develop a sustainable business that provides above average returns, by developing a fully integrated lithium business from mine to battery grade lithium chemical production
- Combines two companies with highly complementary asset portfolios, growth profiles and market positions, leveraging Lepidico's proprietary process technologies and Desert Lion's lepidolite Mineral Resources<sup>2</sup>
- Merger to be implemented by Desert Lion Plan of Arrangement: 5.4 Lepidico securities for every 1 Desert Lion security held
- Lepidico to also undertake a 1 for 9 renounceable entitlements offer to raise up to \$10.8 million for business integration, new development and growth opportunities



# **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	\$107 M (@ 3.2¢; 8 May 2019)			
Shares on issue	3,356,175,188			
Options (unlisted)	396 M, 1.5c - 9.1c			
Major Shareholders (1 May 2019)	Galaxy Resources Strategic Metallurgy JP Morgan Noms Aust Perth Capital Bacchus Capital Advisers Top 5 Top 20	11.0% 10.2% 3.7% 1.4% 1.2% 27.6% 40.1%		



Source: CommSec



### **Asset Overview**

Alvarrões Lepidolite Mine, Operating

Mine expansion & concentrator development in Feasibility Study

Indicated & Inferred Resource  $5.87 \mathrm{Mt} \ @ \ 0.87\% \ \mathrm{Li_2O}$  Ore offtake agreement with Grupo Mota

Desert Lion Energy Project, Mining Licence granted

Mine & concentrator development in Feasibility Study

Indicated & Inferred Resources<sup>3</sup> 8.84Mt @ 0.50% Li<sub>2</sub>O Plan of Arrangement for merger with Lepidico



**Concentrator schematic** 

Gulf Fluor LLC Industrial City of Abu Dhabi MOU for Supply & By-Product Marketing

Trade off study for alternative location for Phase 1 Plant

Gulf Fluor

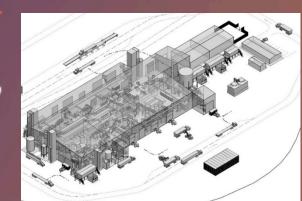
Separation Rapids lithium deposit 9.6Mt @ 1.31% Li<sub>2</sub>O Lepidolite offtake LOI with owner Avalon Advanced Materials



Phase 1 Plant
Sudbury, Canada
In Feasibility Study, Results
due Q2 2019
Corporate Office, Toronto



Mt Cattlin & L-Max®
Synergy potential



Schematic diagram of Chemical plant

LEPIDICO

Lepidico Registered Office & Technical Capability, Perth

L-Max<sup>®</sup> Pilot Plant in commissioning



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

# Proposed Merger of Lepidico and Desert Lion Energy & Lepidico 1 for 9 Renounceable Entitlements Offer



### **Transaction Highlights**

- Plan to merge Lepidico and Desert Lion to create a global leader in the development of lithium chemicals from lepidolite
- Combines two companies with highly complementary asset portfolios and growth profiles
  - Lepidico's innovative L-Max®, LOH-Max™ and S-Max™ proprietary process technologies with the capability to produce battery-grade lithium carbonate and lithium hydroxide for the EV industry
  - Desert Lion's Rubicon and Helikon deposits in Namibia together with Lepidico's ore offtake agreement from the operational Alvarrões lepidolite mine in Portugal
  - Lepidico's pilot plant development with L-Max® and S-Max™ capability is in the commissioning phase and the Phase
     1 Plant Project for 5,000tpa lithium hydroxide output capacity is at advanced stages of feasibility study
  - Battery grade lithium carbonate of 99.8% purity produced from Desert Lion lepidolite mineralisation in L-Max® amenability trial; and
  - Desert Lion's non-binding offtake agreement for lithium hydroxide with BASF SE
- Desert Lion Plan of Arrangement: 5.4 Lepidico securities for every 1 Desert Lion security held
- Merged company: Lepidico Ltd, headquartered in Perth, Australia, listed on the ASX & regional office in Toronto, Canada
- Lepidico to also undertake a 1 for 9 renounceable entitlements offer to raise up to \$10.8 million for business integration, new development and growth opportunities



### **Overview of Proposed Merger**

#### Proposed merger of Lepidico and Desert Lion

- Lepidico and Desert Lion have entered into an Arrangement Agreement to merge by way of a Plan of Arrangement of Desert Lion
- Desert Lion securities holders will receive 5.4 Lepidico securities for every 1 Desert Lion security held
  - A 38% premium based on the closing price of Lepidico and Desert Lion shares on 3 May 2019 or 39% premium based on the 10 trading day volume weighted average price of the shares.
  - o Lepidico security holders will continue to hold their existing Lepidico securities
  - Based on the proposed merger terms, Lepidico will comprise 80.2% and Desert Lion
     19.8% of the capital structure of the combined business on a fully diluted basis

#### Merger expected to be implemented by end July 2019

- The Plan of Arrangement will require Desert Lion shareholder approval (66 2/3rds of shares voted), Court and regulatory approvals and other customary conditions
  - The directors of Desert Lion have stated they intend to vote shares that they own in favour of the Plan of Arrangement, in the absence of a superior proposal
  - Shareholders holding in aggregate of approximately 17% of Desert Lion's shares outstanding have stated an intention to vote in favour of the Plan of Arrangement, in the absence of a superior proposal
- Reciprocal termination fees of C\$1 million are applicable in customary circumstances

#### Indicative timetable for merger completion

Announcement of proposed merger	7 May 2019
Dispatch of Company Circular to Desert Lion shareholders	June 2019
Desert Lion Company meeting	July 2019
Implementation of merger	July 2019

<sup>\*</sup>Reference: Reference: ASX Announcement, Lepidico and Desert Lion to Merge to Create Global Leader in the Development of Lithium Chemicals from Lepidolite / Lepidico 1 for 9 Entitlements Offer to Fund Business Integration, New Development and Growth Opportunities, 7 May 2019



### Strategic Rationale of Proposed Merger

- Lepidico and Desert Lion have a shared strategic objective
  - Both Lepidico and Desert Lion seek to reach free cash flow generation as swiftly as possible by developing a scalable, vertically integrated new lithium chemical business based on lithium mica minerals
- Desert Lion's assets provide a platform to rapidly advance a mine and lepidolite concentrator into development
  - Feasibility study for the re-development of mines at both the Rubicon and Helikon deposits, and the development of a mineral flotation plant capable of producing lepidolite concentrate for the Phase 1 Plant could be completed in the March 2020 quarter, with an inaugural Ore Reserve estimate
  - Mining Licence for a similar development already secured by Desert Lion, reducing permitting risk and providing an opportunity to rapidly transition to development
  - Due diligence by Minmet Services Pty Ltd indicates Desert Lion's assets could provide feed to Lepidico's planned
     Phase 1 Plant to produce lithium chemicals for approximately 14 years, based on the current Mineral Resources base
  - Mine design work for an expansion of the Alvarrões lepidolite mine in Portugal has commenced and indicates potential for a 14 year project life based on the April 2019 Mineral Resource estimate
- Lepidico's ore offtake agreement from the operational Alvarrões lepidolite mine in Portugal and Desert Lion's assets
  provide an excellent platform from which to grow the Mineral Resource base and support Lepidico's scoping study for a
  full-scale lithium chemical plant



### **Combining Two Highly Complementary Businesses**





- L-Max<sup>®</sup>, LOH-Max<sup>TM</sup> and S-Max<sup>TM</sup> proprietary process technologies
- Pilot plant with L-Max® and S-Max<sup>TM</sup> capability is in the commissioning phase a sample of Desert Lion mineralisation is in Perth awaiting processing
- Phase 1 Plant Project is in the advanced stages of feasibility study – engineering for Li<sub>2</sub>CO<sub>3</sub> production complete, engineering for LiOH capability to commence June 2019
- Phase 1 Plant development location trade off study in Industrial City of Abu Dhabi, UAE offers potential to fast track development with enhanced economics versus Sudbury, Canada
- Research & development capability to evaluate further identified value add process technologies
- Ore offtake arrangement with Grupo Mota for production from the operational Alvarrões lepidolite mine in Portugal
- Alvarrões Indicated & Inferred Mineral Resources of 5.87Mt @ 0.87% Li<sub>2</sub>O for 50,000t contained Li<sub>2</sub>O (JORC compliant)
- Well capitalised with A\$4.9 million cash and no debt as at 31 March 2019

- Indicated & Inferred Mineral Resources at Rubicon and Helikon deposits in Namibia of 8.83Mt @ 0.56% Li<sub>2</sub>O for 50,000t contained Li<sub>2</sub>O plus tantalum credit (NI43-101 compliant)
- 10 year Mining Licence granted 20 August 2018 over 68.7km<sup>2</sup> for mine and lithium mica concentrator development
- Exclusive Prospecting Licences covering approximately 1,000km<sup>2</sup> prospective for lithium mica bearing pegmatites
- Infrastructure: all weather road, water bore-field, water licence, 14 bed camp and laboratory, and materials to construct 7km 22kV power line spur to grid
- Two mills and flotation tanks partially refurbished, suitable for a lithium mica concentrator to feed the Phase 1 Plant Project
- Memorandum of Understanding with BASF SE for supply of lithium hydroxide for production of high nickel cathode
- Experienced Namibian team led by Country Manager and COO both with over 20 years' experience
- Testwork by Strategic Metallurgy produced battery grade lithium carbonate using L-Max<sup>®</sup> from Desert Lion mineralisation



### 1 for 9 Renounceable Entitlements Offer\*

- 1 for 9 Lepidico renounceable Entitlements Offer to raise up to \$10.8 million
- Attractively priced at \$0.029 cents per share 24% discount to previous closing price and 26% to the 10 day VWAP
- Entitlement Offer partially underwritten by CPS (Lead Manager) to \$3 million
- Eligible shareholders will receive one free listed option for every 2 new shares with an exercise price of \$0.05 and 3 year term
- Shareholders can trade their rights and apply for additional shares
- Lepidico directors intend to participate; Galaxy Resources Ltd and Bacchus Capital Advisors have agreed to take up their full entitlements
- Proceeds will be used for:
  - Integration of Desert Lion and associated study work
  - LOH-Max<sup>TM</sup> engineering and revised location evaluation for Phase 1 Plant
  - Further L-Max® and LOH-Max<sup>TM</sup> product development work
  - Accelerate drilling activities at Alvarrões in Portugal
  - Exploration
  - Working capital and expenses of the Offer

#### **Timetable**

Lodgement of prospectus with ASIC & ASX	7 May 2019
Notices sent to share & option holders	7-9 May 2019
Ex-date, rights start trading	10 May 2019
Record Date for determining Entitlements	13 May 2019
Prospectus sent to shareholders & Company announcement	14 May 2019
Rights stop trading	22 May 2019
Shares quoted on a deferred settlement basis	23 May 2019
Closing Date*	29 May 2019
ASX notified of under subscriptions	31 May 2019
Issue date / shares entered into shareholders' security holdings / deferred settlement trading ends	5 June 2019
Quotation of shares issued under Entitlements Offer*	6 June 2019

<sup>\*</sup>Reference: ASX Announcement, Lepidico and Desert Lion to Merge to Create Global Leader in the Development of Lithium Chemicals from Lepidolite / Lepidico 1 for 9 Entitlements Offer to Fund Business Integration, New Development and Growth Opportunities, 7 May 2019

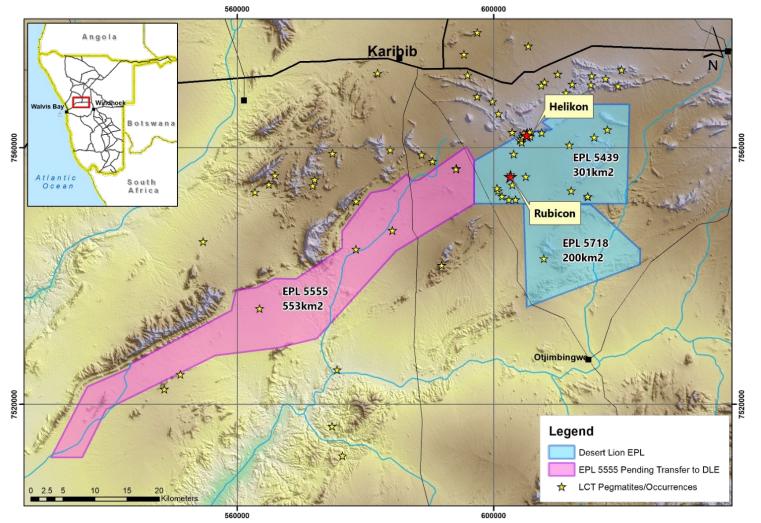
# **Overview of Desert Lion Energy Inc**

**Desert Lion Energy Project, Namibia** 



### **Strategically Located Lithium Asset**

Over 1,000km<sup>2</sup> of contiguous land with 30+ historically identified outcropping lithium bearing pegmatites

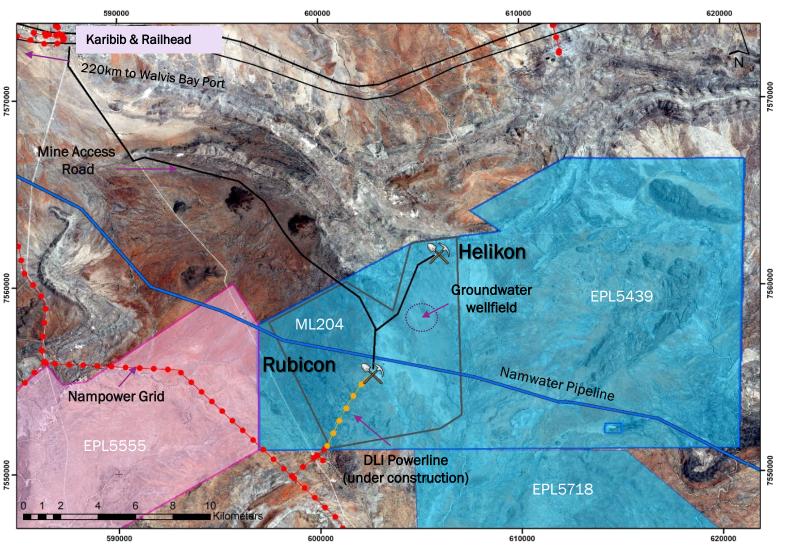






### **Strategically Located Lithium Asset (cont'd)**

Past producing lithium asset with direct access to existing infrastructure: all weather road, water, camp and laboratory, 7km 22kV power line spur to grid in construction





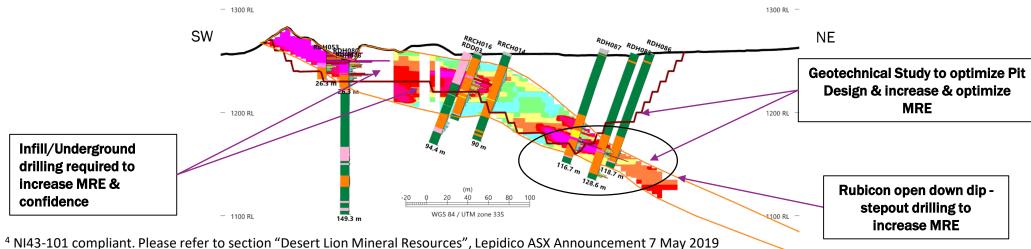
### Mineral Resource Estimate<sup>4</sup>

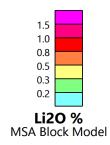
#### **Mineral Resource Estimate**

	Deposit	Resource Category	Cut-off (Li <sub>2</sub> O)	Ore (Kt)	Li <sub>2</sub> 0 (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)
Rubicon	Rubicon Main	Indicated	0.20	3,006.9	0.63	70
	Rubicon Main	Inferred	0.20	1,600.9	0.58	67
Helikon	Helikon 1	Inferred	0.20	2,030.0	0.62	105
	Helikon 2	Inferred	0.20	215.6	0.56	180
	Helikon 3	Inferred	0.20	294.7	0.48	75
	Helikon 4	Inferred	0.20	1,510.1	0.38	47
	Helikon 5	Inferred	0.20	179.2	0.31	44
Total	Rubicon + Helikon	Indicated	0.20	3,006.9	0.63	70
	Rubicon + Helikon	Inferred	0.20	5,830.4	0.53	53

#### Rubicon deposit outcrop and camp site location







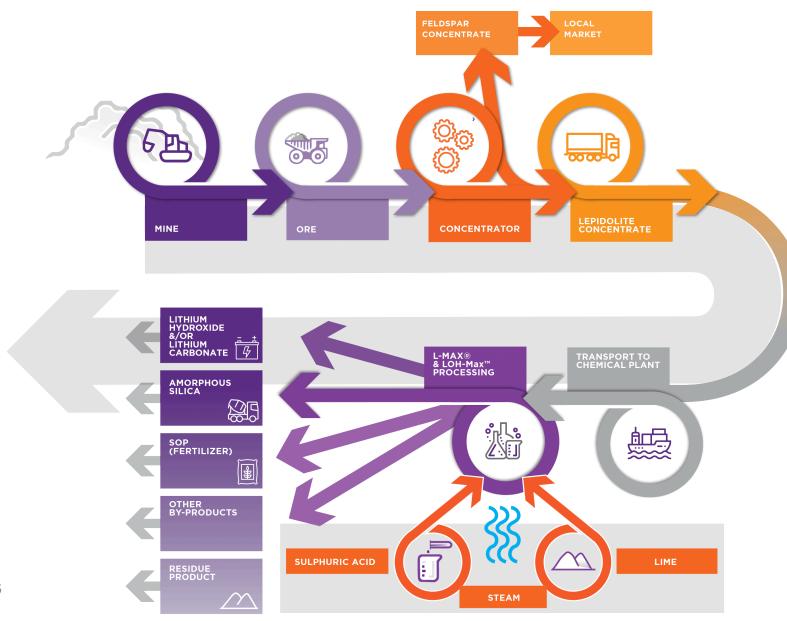


# **Overview of Lepidico**

**Pilot Plant and Phase 1 Demonstration Scale Plant** 



### **Vertically integrated lithium business**



#### Mine and concentrator

- Low impact site with co-disposal of concentrator fines with mine waste – no tailings storage required
- Feldspar concentrate is jurisdiction and volume dependent
- Other concentrator by-product potential from tantalite and tin

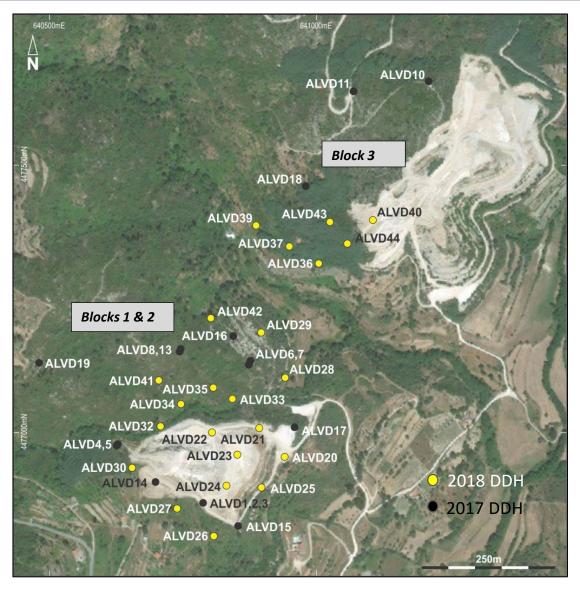
#### Chemical plant

- Minimal emissions steam
- Benign residue being evaluated as a landfill remediation product with natural buffering characteristics

**LEPIDICO** 

Zero-waste objective

### **Alvarrões Lepidolite Mine**



- Ore access agreement with Grupo Mota over the operating Alvarrões lepidolite mine, Portugal, which currently supplies c. 1.8% Li<sub>2</sub>O concentrate to the ceramics industry
- Mining lease covers 634 ha
- Indicated and Inferred Mineral Resource estimate: 5.87M t @ 0.87% Li<sub>2</sub>0
- Mine re-design and expansion study has commenced maiden Ore Reserve estimate due mid-2019
- Design criteria: mining rates to increase sufficient to supply lithium mineral concentrate to the planned Phase 1 Plant
- Concentrator to employ conventional flotation and consider a feldspar concentrate by-product
- Co-disposal of plant fines with mine waste; negates the requirement for a tailing storage facility

April 2019 Est	Pegmatite	Li <sub>2</sub> 0%	0.5 m Halo	Li <sub>2</sub> 0%	Total
Indicated	1.84 Mt	1.12	0.76 Mt	0.26	2.60 Mt @ 0.87% Li <sub>2</sub> 0
Inferred	2.06 Mt	1.20	1.21 Mt	0.31	3.27 Mt @ 0.87% Li <sub>2</sub> 0
Total	3.90 Mt	1.16	1.97 Mt	0.30	5.87 Mt @ 0.87% Li <sub>2</sub> 0





### The L-Max® Advantage

- ✓ The Australian Patent Office declared L-Max® to be "novel, inventive, industry applicable and patentable" for production of lithium carbonate
- ✓ L-Max® leaches lithium from non-conventional and relatively uncontested mineral sources; lithium micas and phosphates, and achieves high extraction rates







Lepidolite

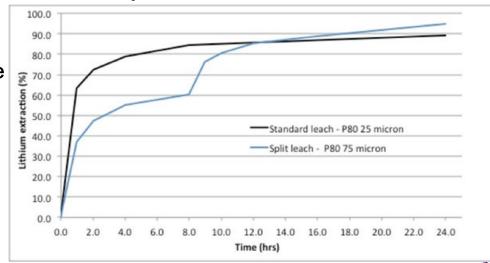
Zinnwaldite

**Amblygonite** 

- ✓ L-Max® utilises common use, inexpensive reagents & is energy efficient
- ✓ L-Max® reagents and operation have straightforward occupational health and safety, and environmental characteristics
- ✓ L-Max® utilises conventional equipment and operates at atmospheric pressure and modest temperature
- ✓ By-products include potassium sulphate fertiliser (SOP), amorphous silica and potentially Cs, Rb, Ta & Sn
- ✓ Scalable technology: scoping study design parameters for a full scale plant will be evaluated in H2 2019

✓ Compatible with other process technologies including LOH-Max<sup>TM</sup> and S-Max<sup>TM</sup>

#### Improved leach kinetics





# Lithium Hydroxide (LiOH) – introducing LOH-Max<sup>TM</sup>

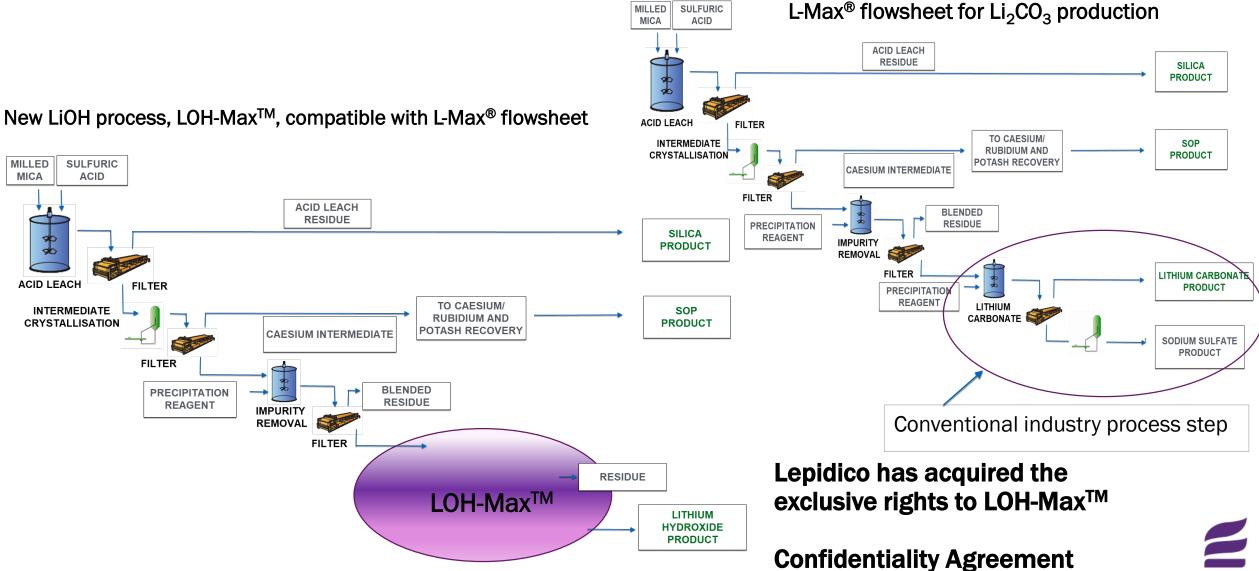
Lithium chemical demand growth has shifted strongly to LiOH

LOH-Max<sup>TM</sup> delivers an industry solution to lithium hydroxide production without by-product sodium sulphate



- Strategic Metallurgy Pty Ltd, in collaboration with Lepidico, has developed a hydrometallurgical process that produces high purity LiOH from a lithium sulphate intermediate without the production of sodium sulphate.
- LOH-Max<sup>TM</sup> is compatible with the highly efficient L-Max<sup>®</sup> impurity removal stages and can replace the subsequent standard industry sodium sulphate and lithium carbonate recovery circuits
- Capital intensity and operating costs are more competitive than for production of lithium carbonate:
  - Elimination of sodium sulphate circuit; significant capital equipment and by-product sales risks removed
  - Potential for lithium hydroxide and/or carbonate producers to retro-fit existing plants or redesign planned plants
- Funding and offtake agreements for new lithium chemical plants in 2018 were heavily skewed towards LiOH operations
- Process residue is benign and alkaline, and is being evaluated as an environmental remediation product

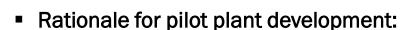
# L-Max® - 100% Owned by Lepidico



required to view the technology

### **Pilot Plant**

- Development of 15kg per hour hybrid L-Max<sup>®</sup> LOH-Max<sup>™</sup> pilot plant on schedule and within A\$3M budget
- Commissioning commenced April 2019, operation on schedule for May 2019





- Reduces scale-up 10-fold, down to 240 times at nominal throughput of 3.6tph for Phase 1 Plant (480 times at 6.9tph)
- Opportunity for prospective Phase 1 Plant offtake/finance partners to due diligence processes in operation
- Provide material for further product development of: amorphous silica (S-Max<sup>TM</sup>), SOP fertilser, caesium brine and environmental remediation residue; other products may be added and assessed
- Provide data for optimisation of Phase 1 Plant operating parameters



**LEPIDICC** 

# Pilot Plant – April 2019

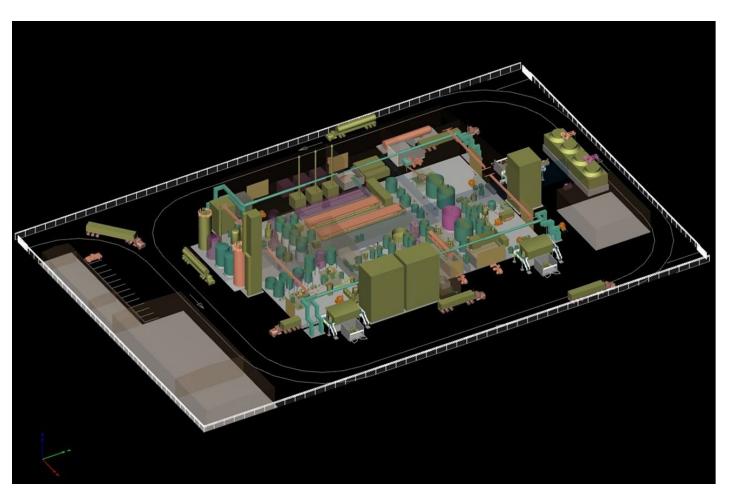








# Phase 1 Plant Design - Demonstration Scale



- L-Max® engineering complete December 2018 for lithium carbonate production
- Incorporation of LOH-Max<sup>™</sup> process design May 2019, engineering due Q4 2019
- Locations: Sudbury, Canada and the Industrial City of Abu Dhabi (ICAD), United Arab Emirates close to excellent established infrastructure
- ICAD trade off study commenced Q1 2019, due to complete Q4 2019
- Local abundance of key reagents: sulfuric acid and lime
- Close to markets for bulk by-products: silica products and SOP fertilizer
- Design contemplates throughput of 6.9tph for c.
   5,000t pa lithium hydroxide
- Total site footprint 200m x 180m including laydown areas, ancillary building and parking

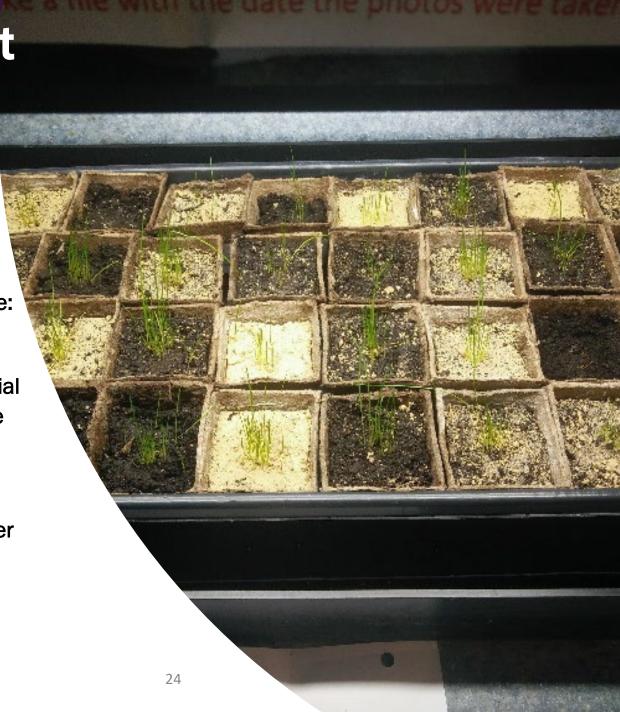
### **Phase 1 Plant residue Product**

University of Waterloo completed an assessment of L-Max® residue for land reclamation purposes

 Chemical analysis using USEPA land fill testing requirements have determined that the gypsum residue is benign and alkaline: 74% moisture, gypsum 60% of solids, pH 8.5

 When blended with soil or clay (50/50) amendments the material has the potential for use as a cover in City land fill sites or in the remediation of tailings dams and mine waste facilities

- Laboratory testwork indicates the blended soil or clay residue meets Ontario standards for industrial, non-potable ground water
- Knight Piésold undertook growth trials (photo) with positive results for soil and clay blended residue
- A residue product makes L-Max® a zero-waste process





...to fast track the business to free cash flow generation, demonstrate the commercial viability of L-Max® and LOH-Max<sup>TM</sup>, and become a globally significant lithium chemical producer, vertically integrated through the value chain from mine to battery grade lithium chemical.





## **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. References to potential throughput in the context of operating or design parameters for scoping study or Feasibility Study for the Phase L-Max® Plant are not and should not be interpreted as a production target relating to any mineral resource to which the Company has already secured rights. 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.

Where a Public report is based on a previously issued report that refers to Exploration results or Mineral resources (or Ore Reserves), and a CP has previously issued their consent, then a company re-issuing that information to the Public (whether as a presentation or a subsequent announcement) must state the report name, date and reference the location of the original report for public access.

In relation to Alvarrões Mineral Resource estimates, the information is extracted from the report entitled "210% increase in contained lithium at Alvarrões" announced to the ASX on 11 April, which is available to view on www.lepidico.com. Lepidico confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.



Creative Resources Leadership

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