# ASX/Media Announcement

Perth: 3 April 2017

## 99.9% Lithium Carbonate Produced from Mini-Plant Trial

- **High specification, battery-grade lithium carbonate grading 99.9%, with exceptionally low impurities, produced from L-Max® mini-plant trial**
- **L-Max® achieves more than 96% lithium extraction from flotation concentrate, with estimated lithium recovery to final lithium carbonate product of 90%**
- **Continuous and stable operating conditions achieved over 8 days of trial**
- **Complete L-Max® design data set created for Phase 1 Plant Feasibility Study**

Lepidico Ltd (ASX:LPD) ("Lepidico" or "Company") is pleased to announce that results from the recent L-Max® mini-plant trial have been received, with extremely high specification, battery-grade lithium carbonate, of 99.9% purity, produced. Importantly impurity levels were exceptionally low, meeting the required specification for the major lithium carbonate producers as tabulated below.

| Product | Producer | | | | |
|---|---|---|---|---|---|
| | Lepidico | SQM | FMC Lithium | Rockwood Lithium | Sichuan Tlanqi |
| $Li_2CO_3$ (% min) | **99.9** | 99.2 | 99.5 | 99.8 | 99.5 |
| **Impurity** | | | | | |
| $SO_4$ (ppm) | **<40** | 300 | 1000 | 500 | 800 |
| Na (ppm) | **BDL*** | 600 | 500 | 650 | 250 |
| K (ppm) | **BDL*** | 50 | 10 | - | 10 |
| $CaCO_3$ (ppm) | **<30** | 250 | 1000 | 400 | 125 |
| Fe (ppm) | **BDL*** | - | 5 | - | 20 |

*Below Detection Limit pre-dilution factor of 12.85 to achieve lithium insolubility in digest
Source: Roskill and Company data

Operating conditions, specifically around the leaching section, were varied during the course of the 193 hours of continuous, stable operation, providing a valuable dataset for the optimisation of the L-Max® circuit.

Managing Director, Joe Walsh, said: *"Lepidico has a clear strategy to become a sustainable lithium producer and the mini-plant trial has proved a resounding success, highlighting L-Max®' potential as a robust and straightforward hydrometallurgical solution for producing extremely high quality lithium carbonate from lithium bearing micas.*

*"The variability work has also provided an essential dataset for further optimisation of the process, which should allow the already excellent recoveries and product quality to be improved upon during the Phase 1 Plant feasibility study. By-product results from the trial will be progressively received and reported upon during the current quarter."*

**Mini-plant Trial Summary**

Feedstock for the mini-plant trial was approximately 500kg of gravity tailings from an existing mining operation[1] that graded 2.4% $Li_2O$ (1.1% lithium) and 0.48% caesium. The lepidolite and lithium muscovite rich tailings were ground to $P_{100}$ 250µm and concentrated using conventional flotation prior to grinding to $P_{80}$ ranging between 10µm and 85µm. The resultant concentrate graded approximately 3.0% $Li_2O$ (1.4% lithium).

This allowed both grind size and residence time (between 15 and 30 hours) to be assessed during the campaign. The grind size impacts lithium extraction, filtration characteristics, and also tantalum recovery from the leach residue. The L-Max® leach residue contained on averaged 800 ppm Ta, and is a potential valuable by-product.

Following a pre-fill stage, the L-Max® mini-plant was operated continuously and stably for 193 hours with approximately 250kg (dry) of concentrate leached. Sulphuric acid consumption was 984kg/t. Leach conditions were varied to determine optimal grind size and residence time. Operating conditions were also varied in the downstream crystallisation and impurity removal stages. These key stages of the L-Max® circuit operated effectively, with minimal downtime and demonstrated that the process is extremely robust. Importantly, the circuit was fully integrated with all process loops closed, as in a commercial plant, to ensure the viability of continuous operation.

An ion-exchange column was included for the first time into the final L-Max® precipitation stage, which significantly reduced impurity levels prior to the final lithium recovery stage. Lithium carbonate grading 99.5% or more was consistently produced during the continuous operations phase of the trial. A final re-precipitation was employed to further clean the product and resulted in the production of 99.9% lithium carbonate with very low levels of critical impurities.

The main conclusions derived from the mini-plant campaign are:

- Continuous operation has successfully demonstrated the process chemistry to be robust
- Lithium extraction and filtration characteristics in the leach is dependent on particle size with an optimal grind of 30µm
- Very low lithium losses (<3%) to the impurity removal residues were achieved
- Lithium recovery of 90% from leach feed to final product is estimated for the Phase 1 Plant based on this modest lithium head grade tailings feed material
- Re-precipitated lithium carbonate was produced grading 99.9% with very low critical impurities
- High recoveries of caesium and rubidium to intermediate products were achieved (Feasibility Study test work is planned for the current quarter on all by-products)
- Potential to recover tantalum from the L-Max® leach residue represents a further opportunity
- Further improvements in lithium recovery will be evaluated by the addition of a simple reprocessing stage of the leach residue

The data created by the continuous run will provide the design information for the Phase 1 L-Max® plant FS.

**ENDS**

[1] Currently the subject of ongoing commercial negotiations.

**Further Information**
For further information, please contact


***Joe Walsh***
***Managing Director***
***Lepidico Ltd***
*Tel: +61 (0)8 9363 7800*

***Tom Dukovcic***
***Exploration Director***
***Lepidico Ltd***

***MEDIA ENQUIRIES***
***John Gardner***
***Citadel-MAGNUS***
*Tel: +61 (0)413 355 997*

*Email: info@lepidico.com*
*Website: www.lepidico.com*


## About Lepidico Ltd

Lepidico Ltd is an ASX-listed Company focused on exploration, development and production of lithium. Lepidico owns the technology to a metallurgical process that has successfully produced lithium carbonate from non-conventional sources, specifically lithium-rich mica minerals including lepidolite and zinnwaldite. The L-Max® Process has the potential to disrupt the lithium market by providing additional lithium supply from alternative sources. The Company is currently conducting a Feasibility Study for a Phase 1 L-Max® plant, targeting production for 2019. Four potential sources of feed to the planned Phase 1 Plant are being evaluated, one of which is the Separation Rapids deposit in Ontario, Canada in partnership with its owner Avalon Advanced Materials Inc.

Lepidico's current exploration assets include options over the Lemare and the Royal projects, both in Quebec, Canada; an ore access agreement with Grupo Mota over the Alvarrões Lepidolite Mine in Portugal; a farm-in agreement with Pioneer Resources (ASX:PIO) over the PEG 9 lepidolite prospect in Western Australia; ownership of the Euriowie amblygonite project near Broken Hill in New South Wales; and an agreement with ASX-listed Crusader Resources (ASX:CAS) on potential deployment of L-Max® in Brazil.