

**Magnis Resources**  
L I M I T E D

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## SIGNIFICANT LITHIUM-ION BATTERY DEVELOPMENTS

- **Excellent full cell battery performance with Nachu Graphite anode**
- **Manufacturing cost of graphite silicon blend anode significantly reduced**
- **99.9% TGC purity achieved when applying additional cleaner steps to the flotation process**
- **Joint milling/spheronisation commercialisation program undertaken with major European vendor**
- **Finalisation of process plant design with vendor equipment testing nearing completion**
- **Nachu Graphite Project rapidly progressing towards production – Ausenco undertaking detailed engineering works**

Magnis Resources Limited (“**Magnis**” or the “**Company**”) (ASX:MNS) is pleased to provide an update on positive lithium-ion battery results and continued progress at its Nachu Graphite Project in Tanzania.

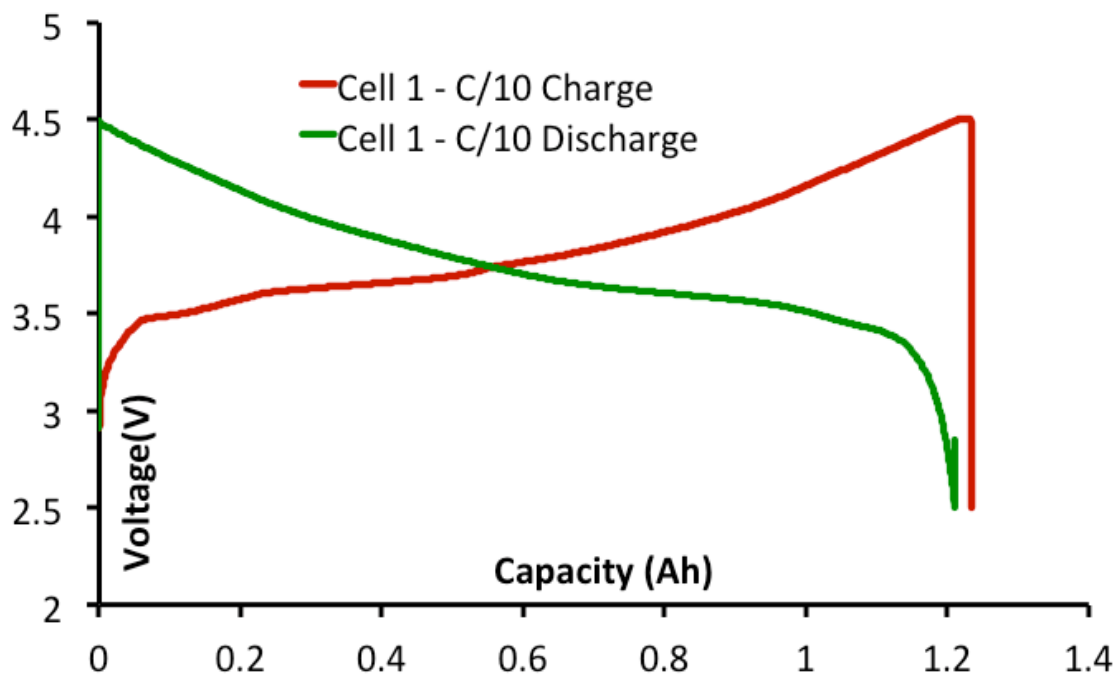
### **Positive lithium-ion battery results**

The Magnis lithium-ion battery development team has made significant progress in recent months with Thermo Gravimetric Analysis of graphite flakes produced using only physical steps (milling and flotation processes) with purity >99.95% TGC. This demonstrates potential to use bulk physical processes to produce anode materials that meet the current <0.05% ash content specification.

Full cell fabrication in a number of form factors with anode materials containing Nachu graphite was undertaken by an external testing facility. This final part in the commercial development

program not only generates performance data around cycling and safety but also provides samples to potential end users for their own evaluation.

After initial cycling at the external testing facility, the full cells have now been delivered to the Magnis testing facility in New York where they will now undergo extended cycling. Full cells have also been delivered to end users including major players in the automotive industry. Initial test results have been excellent in terms of first cycle efficiency and charge/discharge capacity.



**Figure 1 - First Cycle after formation for pouch cell containing Nachu Graphite anode with capacity of 1.2 Ah.**

### **Breakthrough cost reductions for graphite silicon blend anode**

Magnis has realised significant reductions in the manufacturing cost of graphite silicon blend anode material. Pricing per unit weight equivalent to that of current coated spherical natural graphite anode products has been attained. Taking into account the greater than 65% increase in energy density of the graphite silicon blend, means that this material will be very cost effective given the level of cell performance it can deliver.

In recent months Magnis and its partners have received several approaches from parties interested in its graphite silicon blend anode material including major players in the automotive industry. In one case a purchase order has been placed to evaluate our product.

## **Commercialisation of Milling and Spheronisation**

The Magnis battery development team has sought to improve the energy efficiency and yield of the milling and spheronisation steps in making spherical graphite, identifying exciting opportunities for commercialisation. An agreement was reached with a major European equipment vendor to carry out a joint R&D and commercialisation program involving the modification of existing commercial equipment to achieve significant cost savings while delivering a high-quality product.

## **Detailed Engineering Work in Progress**

Ausenco was recently selected to undertake the detailed engineering program of work in preparation for construction at the Nachu Graphite Project. An important aspect of this work has been equipment vendor testing to confirm the selected process flowsheet and associated equipment.

In parallel to generating samples for vendor testing there has also been process optimisation work to demonstrate flexibility in the range of products that can be produced at the mine site. This optimisation work has demonstrated that the addition of cleaner flotation stages to the process can generate up to 99.9% TGC purity product when processing concentrate product from the mine processing plant flowsheet.

This work continues to demonstrate to potential end users the versatility of the Nachu Graphite Project in being able to produce a range of graphite products in terms of size and purity to suit numerous applications.

**Magnis' Chief Executive Officer Dr Frank Houllis commented:** "We are delighted that the Nachu Graphite Project is now rapidly progressing towards construction and that detailed engineering work is underway with Ausenco. Process and vendor testing is nearing completion and continues to confirm opportunities for further optimisation as we transition towards production. Importantly, high purity products can now be produced using the existing 1 rougher and 3 cleaner flotation stages process, eventually at mine site."

"We have made considerable progress on the downstream processing of Nachu graphite concentrate to produce lithium-ion battery anode materials. Our achievements using commercially relevant processes have the potential to improve both high cell performance and cost effective manufacture at the Nachu Graphite Project and we look forward to providing some exciting updates in coming months."

Dr Frank Houllis  
Chief Executive Officer

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