FOR RELEASE
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OUTSTANDING LITHIUM-ION BATTERY ANODE RESULTS

- **Lithium-ion battery grade anodes produced from Nachu graphite using existing commercial scale technology and facilities in North America**
- **No chemical purification required leaving clear potential for Magnis to be the lowest cost anode producer with the smallest environmental footprint globally**
- **Outstanding anode graphite characteristics and lithium-ion battery cell test results**
- **Typically superior performance when compared to leading Chinese natural and synthetic graphite anode products**
- **End user product qualification with potential offtake partners progressing**

Magnis Resources Limited ("**Magnis**" or the "**Company**") (ASX:MNS) advises of the latest results from ongoing qualification and development work on the production of high purity anodes (coated spherical graphite) for lithium-ion batteries.

Magnis CEO Dr Frank Houllis commented: "Today's announcement represents a step-change in the way anode graphite can be produced for lithium-ion batteries. It demonstrates that a superior anode graphite can be made from Magnis' high purity (>99% TGC), larger size flake graphite without any chemical purification or use of toxic acids. Magnis has now illustrated the pathway to a supply chain that is both greener and more cost effective for sustainable industries using lithium ion batteries."

"With qualification work continuing, Magnis expects to realise further improvements in both the quality of its anode graphite and the cost efficiency of its production."

Lithium-ion battery anode product development

Magnis has jointly undertaken qualification of its graphite product offering with a number of prospective end users and supply chain partners since 2Q 2015.

The stated objective of Magnis' qualification work has been to demonstrate the ability to commercially produce a high performance anode graphite which meets or exceeds end user specifications. Important aspects of the qualification have included:

1. Eliminating the use of toxic acids in the purification process (chemical purification);

2. Reducing the carbon footprint of the entire supply chain; and
3. Utilising existing commercially available technology to ensure the results are replicable and that large scale production can be achieved quickly.

Nachu anode product

Magnis has now produced a >99.95% purity coated spherical graphite anode product from Nachu graphite using existing commercial scale technology and facilities in North America. The production of this anode product did not require any chemical purification phase with acid treatment (HCl/HF). The anode product has also delivered outstanding battery cell test results, with favourable performance across key criteria relative to leading Chinese natural and synthetic graphite anodes.

The ability to achieve this outcome is driven by the particular crystalline structure and low in-situ impurities within the Nachu mineralisation.

By alleviating the need for intensive chemical or thermal purification to be undertaken in China (where the overwhelming majority of such graphite processing occurs), Magnis has presented the viability of an alternative supply chain to that which currently exists.

The use of existing technology and commercial facilities is also highly significant in that it delivers replicable results that could be scaled up quickly at low cost in North America and other geographic regions in close proximity to a range of different end users.

Latest battery test results

The most recent lithium-ion battery tests on Nachu anode product (>99.95% coated spherical graphite) have delivered the following results:

- Tap density = 1.21 g/cc
- Compressed density = 1.75 g/cc
- BET = 1.908 m^2/g
- Total Ash < 0.05 %
- First cycle efficiency = 95%
- First charge capacity = 354 mAh/g

These results see the Nachu anode product compare favourably with the leading Chinese natural and synthetic graphite anode products.

The results demonstrate the ability of Magnis to produce battery grade anode material from Nachu graphite feedstock, without the use of chemicals and toxic acids and utilising solely existing commercial scale technology. This important milestone illustrates the viability of a greener and lower cost supply chain for graphite anodes in lithium-ion batteries.

Dr Frank Houllis, Chief Executive Officer
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APPENDIX A

Nachu anode graphite production and battery cell test results

Figures 1 and **2** outline the key processing steps in producing the Nachu battery grade anode graphite material described above.

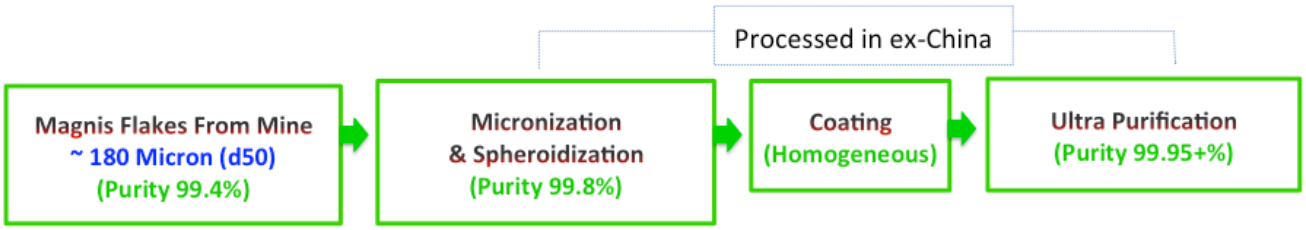

FIGURE 1: Production of Anode Graphite from Nachu Battery Feedstock Without Chemical Purification

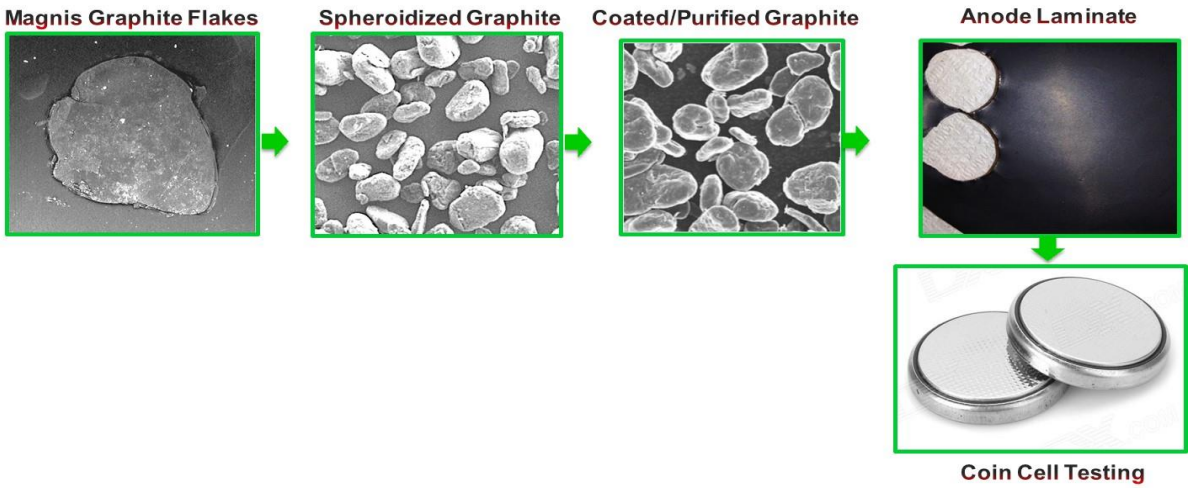

FIGURE 2: Magnis graphite production sequence for lithium-ion battery coin cells.

The anode product has been characterised in terms of its chemical, physical and crystal properties and electrochemical cell performance. The measured values for these characteristics are summarised in **Table 1**. They demonstrate high purity and strong alignment with typical specifications for lithium-ion batteries.

Particle Properties	
Tap density	1.21 g/cc
BET	1.908 m^2/g
Cell Performance	
First cycle efficiency	95%
First charge capacity	354 mAh/g
Purity	
Total Ash	<0.05%

TABLE 1: Characterisation of Coated Spherical Anode Graphite

In **Figures 3** to **5**, detailed electrochemical cell testing results using the coated spherical graphite with >99.95% purity are given. Cycling and efficiency data for the >99.95% purity sample in **Figure 5** are from the early stages of testing and data from a previous iteration 99.8% purity sample are given in **Figure 6**. With over 50 cycles now completed (majority at C/5), capacity retention remains above 355mAh/g which highlights the stability of the anode graphite even at decreased purity.

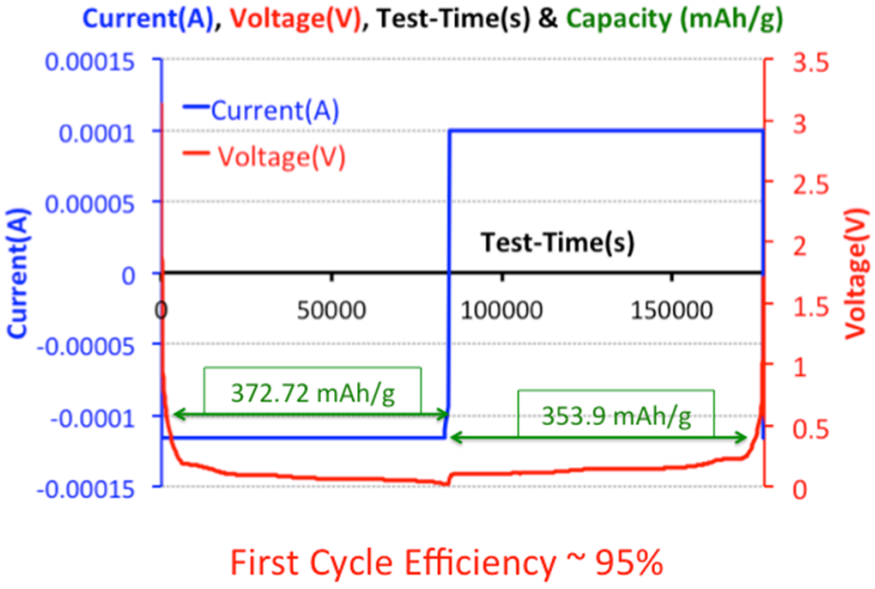

FIGURE 3: First cycle for >99.95% anode grade coated graphite

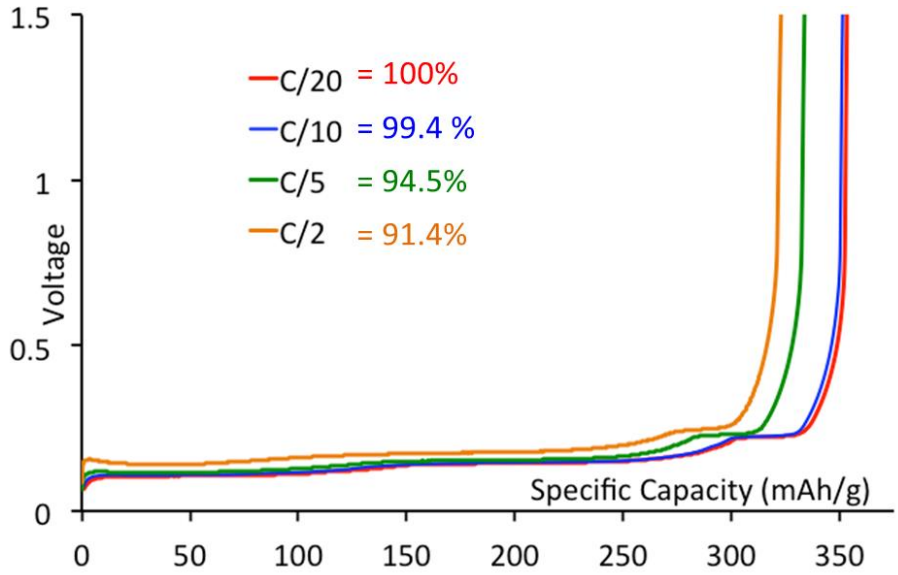

FIGURE 4: Charge capacity for >99.95% anode grade coated graphite at different rates

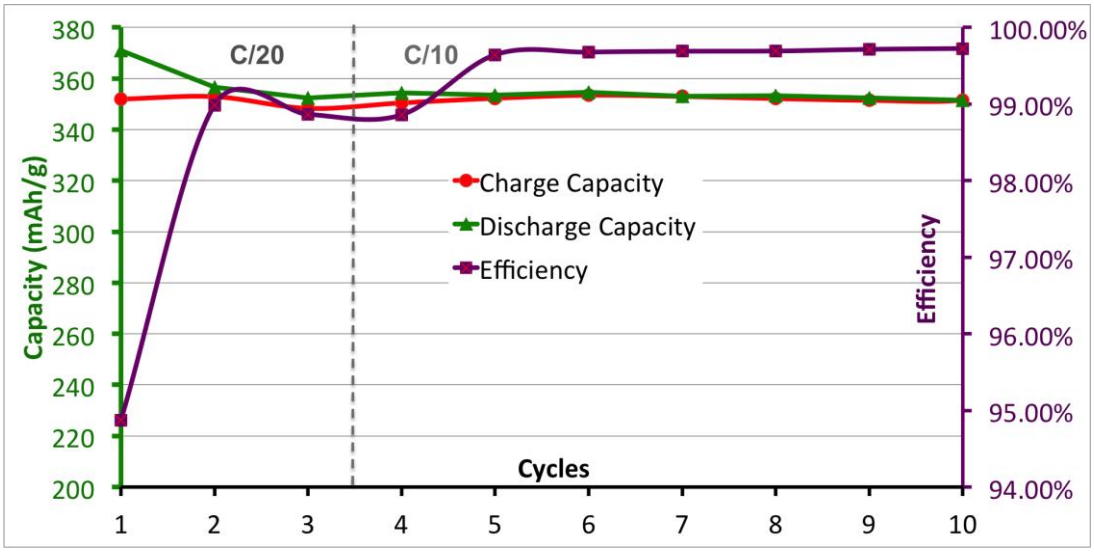

FIGURE 5: Cycling and efficiency for >99.95% anode grade coated graphite

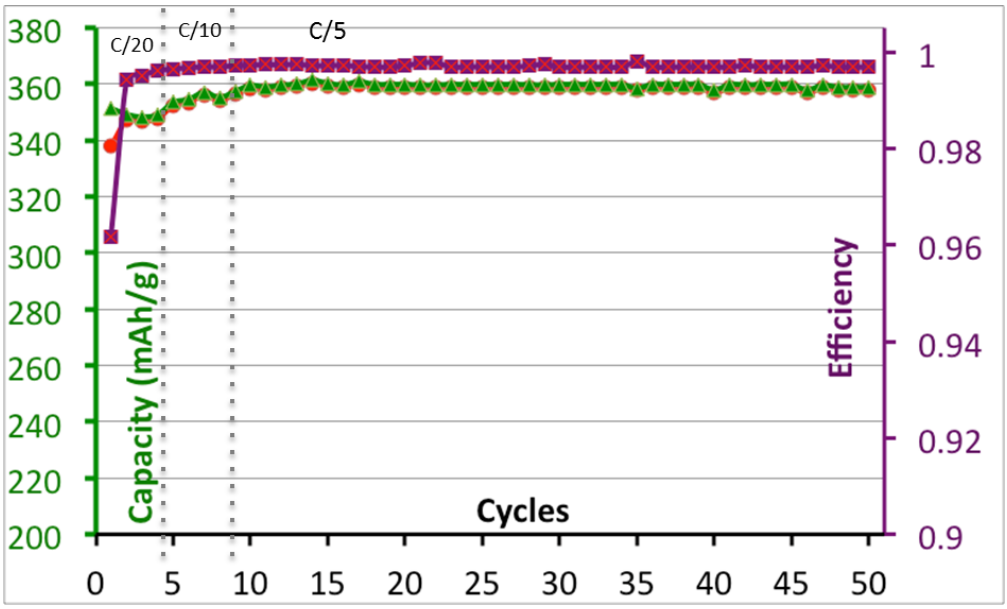

FIGURE 6: Cycling and efficiency for 99.8% anode grade coated graphite

Graphite supply into high performance growth markets

The supply of flake graphite is currently dominated by China, which has its own vast reserves of graphite and integrated production for a range of products. In general, natural flake graphite concentrate originating from China tends to be small in flake size, poorly crystalline and high in impurities. As a result, natural graphite flake products from China often require expensive and environmentally impactful processing steps that usually include chemical purification and high temperature treatment. Many of the final graphite products that are the result of these processes are also characterised by inconsistent performance attributes, stemming from varying feedstock sources. Alternatively, expensive synthetic graphite is used as a substitute graphite feedstock to deliver the required size and/or performance in end uses.

The graphite concentrates planned to be produced at the Nachu mine site by Magnis differ in both flake size and purity from the vast majority of current production in China, and that proposed by other planned graphite project developments around the world.

Magnis has undertaken technical collaboration with a number of potential end users of graphite products to demonstrate the high performance and high purity of the Nachu graphite products. The end users working with Magnis are primarily associated with the high growth Lithium-Ion Battery (LIB) market and the expanded graphite market. Importantly this work has demonstrated the ability of Magnis to supply graphite products at the specified purities, that start from 99% TGC and go up to 99.99% TGC, without chemical purification processes. Equivalent value-added products are generally only available from China (be it via primary sourcing or solely downstream processing there). This technical work has thus presented the viability of an alternative supply pathway for end users of high performance graphite products.