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GreenRoc Mining plc

("GreenRoc" or the "Company")

Successful Battery Test Work using Amitsoq Anode Material & Update on Processing Plant Feasibility Study

GreenRoc Mining plc (AIM: GROC), a company focused on the development of critical mineral projects in Greenland, is pleased to announce the successful results of electrochemical battery test work using graphite from its Amitsoq Graphite Project ("Amitsoq" or the "Project") in southern Greenland, along with an update on its Processing Plant Feasibility Study following a visit to processing plant manufacturers in China last week.

Overview

- An anode electrode was prepared at a specialised battery research facility in Europe using Amitsoq uncoated purified spherical graphite and then assembled with other components in a test battery cell.
- A series of charging and discharging cycles were performed. The Amitsoq graphite anode performed well against all studied parameters, was very stable and had no signs of damage or loss of capacity after several cycles of both short and intensive charging.
- This was the first battery test work of Amitsoq graphite. The positive results are important because not all natural graphite is suitable for use as active anode material in battery cells.
- As part of GreenRoc's ongoing Feasibility Study into the construction of an active anode processing plant, GreenRoc representatives recently visited several of China's leading manufacturers of spheronisation equipment and graphite processing plants.

Details

Battery Test Work

To qualify as potential feedstock for the production of active anode material for lithium-ion ("Li") batteries, graphite concentrate must have its performance tested in a battery setup. In autumn 2023, GreenRoc contracted ProGraphite GmbH in Germany to order and oversee an electrochemical test work programme at a well-established battery research centre on graphite extracted in 2022 from the Lower Graphite Layer orebody at Amitsoq.

Amitsoq graphite concentrate was processed into spherical graphite with D50 of 16 µm (average particle size of 16 micrometre) and purified to >99.95% graphite. This material was combined with other components to form a final slurry, which was coated onto a copper foil to form the anode. This anode was then inserted within a newly assembled single, disc-shaped Lithium-based

battery cell with a diameter of 10.95 mm. The battery cell was then subjected to a series of charging and discharging cycles.

The results of the programme reported a first discharge specific capacity after battery formation and condition of 369 mAh/g. This is close to the theoretical maximum achievable value of 372mAh/g, which is considered a good result. In subsequent cycles, the charging capacities achieved were also considered good for uncoated spherical graphite.

In tests with a long charging time (3-10 hours), the discharge performance was very good with near 100% Coulombic Efficiency (99.81% +/- 0.06% to 100.09% +/- 0.2%).

At a high number of charge/discharge cycles (40-44), the battery maintained a high capacity (363 mAh/g), which suggests good durability, and, after a high charging rate/short charging time (6 minutes) cycle, the performance was still good, showing that no damage occurred to the material at such elevated charging rates.

Finally, differential capacity measurements showed staged intercalation of Li-ions both during charging and during discharging, which in turn demonstrates good crystallinity of the Amitsoq graphite anode material. This is also a positive, since long cycle life correlates with stable graphite crystallite size.

Please refer to the Glossary below for an explanation of certain technical terms used in this section.

Active Anode Material Processing Plant

GreenRoc aims to become a vertically integrated producer of active anode material ("AAM", also known as coated spherical purified graphite or "cSPG") using graphite concentrate from its Amitsoq project in Greenland.

In September 2023, the Company commenced a Feasibility Study into establishing a processing plant supported by a ca. £260,000 grant from the UK's Automotive Transformation Fund. It is planned that the Feasibility Study will be delivered by end of Q2, 2024.

The Company is pleased to report that the first and second work phases of the Feasibility Study, namely collecting market and technical data and material for the study, are now complete. As part of that work, GreenRoc representatives, together with a metallurgist from SLR Consulting Ltd, an adviser on the Feasibility Study, last week visited three leading manufacturers of processing equipment in the Zhejiang and Shandong provinces in China. These manufacturers are able to provide both complete and modular graphite processing lines and have extensive experience of delivering equipment to graphite processing plants in China, a country which today manufactures more than 90% of the world's AAM.

While in China, GreenRoc's representatives also visited an operating graphite processing plant, including chemical purification lines, to view processing equipment in operation.

The next stages of the Feasibility Study include the design of both a pilot and a full-scale processing plant, estimation of production rates, energy requirements and consumables, a full discounted cash flow model for the full-scale processing plant and integrating a risk model.

GreenRoc's CEO, Stefan Bernstein, commented:

"The outcome of this battery test programme is hugely pleasing. This is the first time that graphite material from our Amitsoq Project has been tested for its performance within an assembled lithium ion battery cell. These results demonstrate that uncoated purified spherical graphite from Amitsoq performs very well as the active anode material in a battery cell, which is excellent news given that not all natural graphite material is suitable for use in the manufacture of batteries.

"Our Feasibility Study into the establishment of an active anode material processing plant is also progressing well and is on schedule. We now have comprehensive reports on the graphite anode market, on specifications for graphite anodes, and on the various options for processing techniques and equipment. During our visit to China, we saw at first hand the state-of-the-art processing equipment which today, in Chinese processing lines, is delivering active anode material to all of the world's battery producers.

"We now have a much clearer understanding of the steps towards establishing an AAM processing plant in our part of the world and look forward to completing the Feasibility Study in the next few months. This will be a key step towards GreenRoc becoming one of the first producers of active anode material for EV batteries in a Western economy."

This announcement contains inside information for the purposes of the UK Market Abuse Regulation and the Directors of the Company are responsible for the release of this announcement.

Forward Looking Statements

This announcement contains forward-looking statements relating to expected or anticipated future events and anticipated results that are forward-looking in nature and, as a result, are subject to certain risks and uncertainties, such as general economic, market and business conditions, competition for qualified staff, the regulatory process and actions, technical issues, new legislation, uncertainties resulting from potential delays or changes in plans, uncertainties resulting from working in a new political jurisdiction, uncertainties regarding the results of exploration, uncertainties regarding the timing and granting of prospecting rights, uncertainties regarding the timing and granting of regulatory and other third party consents and approvals, uncertainties regarding the Company's or any third party's ability to execute and implement future plans, and the occurrence of unexpected events.

Actual results achieved may vary from the information provided herein as a result of numerous known and unknown risks and uncertainties and other factors.

Glossary

Battery formation and condition: During the first charging/discharging cycles, a solid electrolyte layer is formed at the surface of the graphite anode particles. This is an integral process for the creation of lithium-ion battery for the performance in terms of cycle life limitations, the capacity for reversibility and safety.

Charging and discharging cycles: A discharge/charge cycle is commonly understood as the full discharge of a charged battery with a subsequent full recharge.

Coulombic Efficiency: Also known as "Current Efficiency", this describes the efficiency by which electrons are transferred in batteries. Coulombic Efficiency is the ratio of the total charge extracted from the battery to the total charge put into the battery over a full cycle.

Differential capacity: This tracks a battery's capacity change on charge and discharge as a function of voltage. Peaks in capacity during charge/discharge are indications of graphite crystallinity (phase transitions).

Discharge performance: This indicates how efficiently the graphite anode releases the lithium ions.

****ENDS****

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About GreenRoc

GreenRoc Mining plc is an AIM-quoted company which is developing mining projects in Greenland in critical, high-demand and high-value minerals.

Led by a group of highly experienced mining industry professionals, GreenRoc has a portfolio of 100% owned projects all of which have defined Resources:

- **Amitsoq Graphite Project**, one of the highest-grade graphite deposits in the world with a combined Measured, Indicated and Inferred JORC Resource of 23.05 million tonnes (Mt) at an average grade of 20.41% graphite, giving a total graphite content of 4.71 Mt;
- **Thule Black Sands Ilmenite Project** ('TBS'), which has an initial Mineral Resource of 19Mt at 43.6% Total Heavy Minerals with an in-situ ilmenite grade of 8.9%; and
- **Melville Bay Iron Project**, which has a Mineral Resource Estimate of 67Mt at 31.4% iron and has been proven to be processable to a high-grade, 70% concentrate with low impurities.

About Amitsoq

Amitsoq is located in the Nanortalik region of southern Greenland and has been confirmed as one of the highest-grade flake graphite projects in the world. GreenRoc is focused on fast-tracking the development of Amitsoq into a producing mine in the shortest possible timeframe to meet critical demand from Electric Vehicle ('EV') manufacturers in Europe and North America for new, high grade and conflict-free sources of graphite.

Key points about Amitsoq:

- *GreenRoc holds the Amitsoq exclusive exploration licence MEL2013_06 of a total of 72.52km2 in the South of Greenland.*
- *Amitsoq has a total inferred, indicated and measured JORC Resource of 23.05 million tonnes (Mt) at an average grade of 20.41% Graphitic Carbon ("C(g)"), giving a total graphite content of 4.71 Mt.*
- *Results of the Preliminary Economic Assessment were released on 31 October 2023 stating a post-tax NPV8 of US$179M at an IRR of 26.7%. Capex estimated at US$131M including a 25% contingency.*
- *Several samples have been extracted for the purpose of testing the quality of the Amitsoq graphite.*

- *Independent micronisation and spheronisation test work has proven that Amitsoq graphite can be easily upgraded to high-grade anode-quality graphite, otherwise known as high purity spherical graphite or cSPG, a key raw material in the manufacturing of EVs.*
- *In GreenRoc's test work programmes, Amitsoq spheronised graphite has achieved higher than 99.95% purity with relatively little energy input and processing and using the milder alkaline purification method compared to the industry standard hydrofluoric acid, boding well for future production costs and sustainability commitments.*
- *Significant further upside exists at Amitsoq as the Amitsoq Island Deposit is open in at least two directions with potential for considerable further expansion via the similarly high-grade Kalaaq Mainland Deposit as well as a series of other high-grade targets on GreenRoc's licence package.*
- *The deposit was in small-scale production about 100 years ago, and there remains considerable underground mine development in place from that time, which will be of considerable benefit to GreenRoc in the mine construction phase.*
- *Following a detailed evaluation process, the European Raw Materials Alliance has expressed its support of GreenRoc and its Amitsoq graphite project, stating that "GreenRoc's graphite resource is of global importance and, together with the Company's strategy, will enable the European Union to achieve a certain level of independence for the electrical vehicle supply chain. ERMA has approved the Amitsoq Graphite project and will engage to support its development and financing to produce these critical raw materials for the benefit of the European Union goals." (see RNS dated 8 February 2023).*
- *On 9 October 2023, GreenRoc was awarded a grant of approximately £250,000 by the Automotive Transformation Fund in the UK to part-finance a feasibility study into the establishment of a graphite spheronisation processing plant in the UK to produce active anode material from graphite concentrate delivered from Amitsoq.*

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