

10 February 2020

ASX: BEM

ASX Announcement

BLACKEARTH GRAPHITE SUITABLE FOR LITHIUM ION BATTERIES

- **Independent German full service specialist in testing and engineering services, ANZAPLAN , has successfully completed a graphite anode suitability test program**
- **BlackEarth Minerals' 99.97% purity spheroidized carbon suitable for use in anode production for the lithium ion battery market**
- **Testwork indicates that BEM concentrate produced results similar to a high-performance reference graphite material used by ANZAPLAN. BlackEarth is continuing discussions with industry leading manufacturers of lithium ion batteries, with the aim of entering into offtake agreements.**

BlackEarth Minerals NL (**ASX: BEM**) ("**BlackEarth**", or the "Company") is pleased to announce the receipt of the final testwork report from Dorfner ANZAPLAN ("ANZAPLAN"), a leading independent German full service specialist in testing and engineering, which BEM engaged in May 2019, to undertake an expansive testwork program for evaluating BEM graphite concentrate from the Maniry project in Southern Madagascar with regard to graphite anode suitability.

The graphite concentrate evaluation testwork program undertaken by ANZAPLAN considered:

1. Chemical and Physical characterisation;
2. Micronisation and Spherodization performance and characterisation;
3. Purification of the Spherical Graphite produced; and
4. Electrochemical characterisation of the Spherical Purified Graphite.

Items 1 – 3 (above) have previously been reported (ASX:BEM 12 August 2019 and ASX:BEM 3 September 2019).

The spherical graphite purification testwork included:

1. Conventional acid leach
2. Microwave assisted acid digestion
3. HF acid "Free" acid digestion
4. Thermal purification

In all four different purification methods tested, the spherical graphite was able to be purified to the minimum + 99.95 wt.-% fixed carbon which is required for battery applications. The testwork demonstrated the amenability to readily purify BEM spheroidized materials, in meeting battery grade specifications. It should be noted that the testwork was preliminary in nature and not optimised in terms of reagent consumptions and conditions,

Following successful purification and spheroidization testwork, preliminary electrochemical characterization testwork was undertaken. This involved using BEM material as an anode and testing its effectiveness within a lithium ion battery over time. Testwork was completed on a sample of spheroidized and purified graphite (BE L7) with the following characteristics shown in Table 1.

Table 1: Physical characteristics purified SPG product BE L7*

Tap density [g/cm ³]	D50 [μm]	D90/D10 ratio [-]	BET [m ² /g]	Fixed Carbon [LOI %]
0.94	14.7	2.6	6.9	99.96

**values were based on previous BE SP S1 testwork*

For electrochemical evaluation, single layer full pouch cells were fabricated as shown in Figure 1.



Image 1: Image of a single-layer pouch test cell

Preparation and testing of an anode material in full cells is the method of choice for most accurately characterizing the relative performance of a new material in actual lithium-ion cells. It is therefore preferable over testing in conventional half coin cell constructions.

The testwork comprises the following individual steps:

- Determination of formation capacity and first charge efficiency;
- Determination of cycling performance (100 cycles); and
- Determination of rate capability.

In addition, the BEM material was compared to a high performance purified spherical graphite reference material which represents a reference material in the upper third of quality materials used in the anode application.

The testwork indicated that the BEM material produced results that were similar to the high-performance reference graphite material.

In summary, the testwork has demonstrated that the BEM graphite material:

- Can be successfully spheroidized and purified by industry standard methodologies; and
- Preliminary electrochemical testwork on uncoated spheroidized purified graphite has shown suitability for Li battery applications.

BlackEarth Managing Director, Tom Revy, commented: “The test results achieved by ANZAPLAN, further demonstrate the suitability of Maniry Project concentrate, for use in anode production for the lithium ion battery market. The test results are an important component towards the end-user qualification process and ultimately off-take agreements, with industry leading manufacturers of lithium ion batteries. BlackEarth is currently continuing offtake discussions and look forward to updating the market further.”

This announcement is authorised for release by Mr Tom, Revy, Managing Director.

CONTACTS

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BlackEarth encourages investors to update their contact details to stay up to date with Company news and announcements here: <http://www.blackearthminerals.com.au/update-details/>

Competent Person’s Statement

- The information in this report that relates to metallurgical test work results is based on information compiled and reviewed by Mr David Pass, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Pass is an employee of BatteryLimits. Mr Pass has sufficient experience relevant to the mineralogy and type of deposit under consideration and the typical beneficiation thereof to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 Edition). Mr Pass consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

For more information – www.blackearthminerals.com.au

About BlackEarth Minerals NL

BlackEarth Minerals NL (ASX:BEM) is an ASX listed company focussed primarily on the development of its 100% owned Madagascan Maniry and lanapera graphite projects. For more information, visit <https://www.blackearthminerals.com.au>.



Project Life	10 Years
NPV @ 10% pre-tax	US\$ 103M
IRR pre-tax	42%
Project CAPEX Stage 1	US\$ 41M (500ktpa ore)
Project CAPEX Stage 2	US\$ 29M (1Mtpa ore)
Payback for Stages 1 & 2	3.7 years (Stage 1 - Only 2.7 years)
Annual graphite production	Av 30ktpa (Stage 1 – Years 1-3) Av 60ktpa (Stage 2 – Years 4+)

Project	Deposit	Tonnes (Mt)	TGC Grade (%)	Contained Tonnes (t)
Razafy	Razafy - Indicated	8	7.22	677,600
	Razafy - Inferred	3.2	6.8	217,600
	Razafy -Total	11.2	7.1	795,200
Maniry	Haja - Inferred	9	5.79	521,100
	Haja Total	9	5.79	521,100
Total Resources		20.2	6.51	1,316,300

Above: Maniry Graphite Project Scoping Study Results
 Left: Location of BEM's Maniry & lanapera graphite projects

The Razafy Resources (both indicated and inferred) are reported at 6% TGC with cut off constraining wireframe solids defined at a nominal 3% cut off grade.

The Haja Resource is reported at 5% TGC cut off with cut off constraining wireframe solids defined at a nominal 15% cut off grade.

The indicated mineral resource at Razafy was first reported in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project".

The inferred mineral resource at Razafy was first reported in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project".

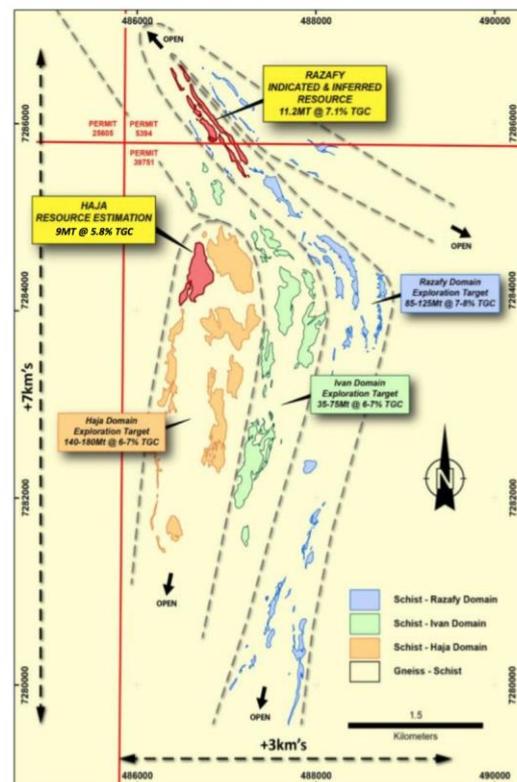
The inferred mineral resource at Haja was first reported in the announcement of 27 December 2018 entitled "Maiden Resource Estimation for Haja at Maniry Graphite Project".

There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.

The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement in respect of the scoping study results (see the announcement of 30 January 2019 entitled "BlackEarth announces positive Scoping Study results for the Maniry Graphite Project") and that all material assumptions and technical parameters underpinning the estimates of forecast financial information continue to apply and have not materially changed.

Additionally, the Company confirms that it is not aware of any new information or data that materially affects the information regarding the indicated mineral resource at Razafy in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project", which forms the basis of the production targets outlined in the table above.



Maniry Graphite Project – Overview

For further information regarding the Maniry exploration target, please refer to the announcement entitled "Exploration Target Update" dated 14 August 2018 "Update Maniry Exploration Target"