

Independent Metallurgical tests show expandability and purity of Caula graphite

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- Independent metallurgical testwork indicates Caula graphite to be suitable for the production of expandable graphite, spherical graphite and all kinds of other applications including flame retardants and graphite foil
- Excellent expansion volumes achieved for all flakes sizes with an average expansion volume of 295 mL/g achieved
- The following results were achieved:
 - Expansion volumes of 430 mL/g for +500 micron flakes
 - Expansion volumes of 390 mL/g for +300 to -500 micron flakes
 - Expansion volumes of 350 mL/g for +180 to -300 micron flakes

New Energy Minerals Limited (“**New Energy**”, the “**Company**”) (**ASX:NXE**) (**FRA:GGY**) is pleased to announce the results of the first set of specialised independent tests conducted by German Based NGS Trading and Consulting GmbH (“**NGS**”), on its 40% owned Caula Graphite and Vanadium project located in Northern Mozambique.

Dr. Bernard Olivier MD of NXE today commented: “The specialised independent testwork returned some truly excellent results for the Caula graphite samples and concluded that they could not find any restriction on the application of this type of expandable graphite. The report further states that the chemically purified flake graphite qualifies for the production of spherical graphite and all kind of other applications including flame retardants and graphite foil.”

Background

Two composite samples of graphite concentrate, one from the Oxide Zone and one from the Fresh Zone, were submitted to NGS for purification tests, as well as a full suite of 25 different tests for the preparation of expandable graphite, conducted over a mix of all grain sizes.

Expandability Testwork

Expandable graphite is produced by heating graphite to a temperature that causes expansion of individual flakes of graphite. Expandable graphite is sought-after for several applications including flame-retardant building materials and textiles, with graphite concentrates that expand at high rates selling at a significant premium to typical graphite concentrates. The samples were tested for expansion adding acid-based intercalation agents and applying heat up to 1000°C.

The industry benchmark standard of 230 mL/g is considered an excellent expansion rate and is used as a reference point for expandable graphite testwork. The first set of expandable tests conducted at NGS produced expansion ratios of up to 430 mL/g for both the Oxide Zone and Fresh Zone composite samples and an average of 295 mL/g for all flake sizes combined (See Table 1 below). NGS tested expandability of both zones with the most common, low cost and simplest methods of preparation.

Table 1. Optimum Expansion coefficient achieved for the Caula graphite concentrates

Flake Size (microns)	Expansion Volume (mL/g) at 800°C	Expansion Volume (mL/g) at 1000°C
>500µm	420	430
500 - 300µm	375	390
180 – 300µm	320	350
106 – 180µm	210	230
76 – 106µm	160	180
<75µm	90	110

NGS described and tested several different methods for the preparation of expandable graphite and could not find any restriction on the application of this type of expandable graphite. The NGS report further concluded that very large expansion volumes were achieved for a mix of all flakes and the composite samples from the Oxide Zone and Fresh Zone are very well suited for the preparation of expandable graphite.

Purity Testwork

Chemical purification testwork were conducted on both the Oxide Zone and Fresh Zone samples. The results of the purification testwork are indicated in Table 2 and Table 3 below.

Table 2. Results of the chemical purification process for Oxide Zone sample after drying at 80°C

Flake Size	>500µm	>300µm	>180µm	>106µm	>75µm	<75µm	Average
Volatile Matter	0.13%	0.10%	0.12%	0.10%	0.13%	0.33%	0.15%
Loss on Ignition	99.98%	99.99%	99.99%	99.98%	99.95%	99.71%	99.86%
Carbon content	99.85%	99.98%	99.89%	99.88%	99.82%	99.38%	99.78%
Ash content	0.02%	0.01%	0.01%	0.02%	0.05%	0.29%	0.14%

An average of 99.86% TGC purity was achieved from the Oxide Zone sample through a non-optimised, simple and low cost chemical up-grading process, on all fake sizes including the minus 75µm fraction. The weighted average for all fake sizes larger than 75µm achieved 99.97% TGC purity.

Table 3. Results of the chemical purification process for Fresh Zone sample after drying at 80°C

Flake Size	>500µm	>300µm	>180µm	>106µm	>75µm	<75µm	Average
Volatile Matter	0.22%	0.24%	0.27%	0.34%	0.37%	0.78%	0.37%
Loss on Ignition	99.72%	99.63%	99.60%	99.48%	99.29%	94.39%	98.73%
Carbon content	99.50%	99.39%	99.32%	99.14%	98.92%	93.61%	98.36%
Ash content	0.28%	0.37%	0.40%	0.52%	0.71%	5.61%	1.27%

An average of 98.73% TGC purity was achieved from the Fresh Zone sample through a non-optimised, simple and low cost chemical up-grading process on all flake sizes including the minus 75µm fraction. The weighted average for all sizes larger than 75µm achieved 99.54% TGC purity.

The NGS report noted that there is no reaction of the graphite samples and graphite ash with hydrochloric acid (HCl). This is an indication of the absence or a small quantity only of CaCO₃ in the samples and therefore has important implications for some graphite applications. The report further stated that the flake ash mainly consists of very small mica particles and mica plates in the coarse flake sizes.

NGS could not find any grains of hard minerals such as quartz in the flake ash. This observation qualifies the flake graphite from the Caula project, as represented by the Oxide and Fresh Zones samples for the production of graphite foil. The report also stated that the extremely high LOI (TGC) qualifies the chemically purified flake graphite for the production of spherical graphite and all kind of other applications like flame retardants and graphite foil.

Caula Graphite and Vanadium Project

The Company's remaining 40% ownership in the Caula Graphite and Vanadium project (through its 50% shareholding in Balama Resources Pty Ltd) is currently subject to a Share Sale and Purchase Agreement (SSPA) with Auspicious Virtue Investment Holding Limited for the sale by New Energy of all its remaining shares in Balama Resources Pty Limited. The transaction is subject to shareholder approval and a favourable Independent Expert Report (IER). Based on the Notice of Meeting being dispatched by the end of March 2019, New Energy expects to be able to hold the EGM in late April or early May 2019.

The proposed capital reduction and distribution to shareholders can only occur after the transaction closes and all condition precedents, including shareholder approvals, are met. The timeframe for seeking and obtaining approvals from the Mozambique Government is estimated to take approximately six to eight weeks. The Company is therefore targeting early to mid-June 2019 for the conclusion of the capital reduction and distribution following transaction closing which according to the SSPA has to occur on/before 1 July 2019 (**Conditions Precedent End Date**).



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COMPETENT PERSON STATEMENTS:

Information in this report that relates to the metallurgical test work results and sample composites of the Caula Graphite & Vanadium Project is based on information compiled by Dr. Evan Kirby, a Competent Person who is a registered member of the South African Institute for Mining and Metallurgy (SAIMM), which is a Recognised Professional Organisation (RPO) included in a list posted on the ASX website. Dr Kirby is a consultant who was engaged by the company to undertake this work. Dr Kirby is a Non-Executive Director of the company. Dr Kirby has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which he is undertaking 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. Dr Kirby consents to the inclusion of the data in the form and context in which it appears.

Information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Johan Erasmus, a Competent Person who is a registered member of the South African Council for Natural Scientific Professions (SACNASP) which is a Recognised Professional Organisation (RPO) included in a list posted on the ASX website. Mr Erasmus is a consultant to Sumsare Consulting, Witbank, South Africa which was engaged to undertake this work. Mr Erasmus has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results. Mr Erasmus consents to the inclusion of the data in the form and context in which it appears.

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