

ASX ANNOUNCEMENT

LINDI JUMBO PROJECT - METALLURGY

Lindi Jumbo flake highly suitable for expandable graphite products

Highlights

11 October 2016

- Independent German laboratory concludes Lindi Jumbo graphite as “...*highly suitable for the production of expandable graphite and graphite foil.*”
- “...*largest expansion volumes ever measured at our lab...*” ratio of up to 590 cm³/g for Super Jumbo (+500µm) and Jumbo (+300µm) flake against industry benchmark of 250 cm³/g.
- Excellent expandable indexes across all size fractions including <75µm which is four times more superior when compared to fine graphite from China.
- The most common, simplest, quickest and cost effective test yields the largest expansion volume translating into lower costs of production.
- Company to target expandable and battery markets for Lindi Jumbo premium natural flake graphite.
- Expandable graphite is a fast growing and high value market with graphite foil selling for as much as US\$50,000 per tonne.

Overview

African focussed, ASX listed energy metals developer Walkabout Resources Ltd (ASX:WKT) will focus on expandable and battery markets following the first set of outstanding expandable graphite test results carried out by independent graphite-specialist laboratory, NGS Trading and Consulting in Leinberg Germany.

Three samples of concentrate were despatched to the laboratory where a full suite of sixteen different tests were conducted on the expandability properties of Lindi Jumbo graphite concentrate.

A key outcome for expandable graphite is to exceed the industry benchmark rate of 250 cm³/g, considered as an outstanding expansion rate. Lindi Jumbo material, in a first range of expandable tests, has produced expansion ratios of up to 590 cm³/g by employing basic and low cost room temperature intercalation tests with standard short term oxidization and acid exposure prior to expansion heating.

Managing Director, Allan Mulligan said: “*The premium flake graphite to be produced at Lindi Jumbo is highly suited to the manufacture of expandable graphite products and graphite foil. Quality feedstock for expandable graphite is in short supply in China at the moment and will need to be sourced internationally.*”

“*Prices for graphite foil are as high as US\$50,000 per tonne and these products will soon be competing with the rapidly expanding international battery market for premium graphite feedstock. Premium Tanzanian graphite will become the supply of first choice and we intend to be a premium supplier of it. We’re currently preparing further samples for despatch to our potential customer base in China, North Asia, USA and Europe.*”

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Summary Results

Expandable graphite is also referred to as intumescent graphite, expanding graphite, exfoliating graphite or simply “expandable flake” and is a natural flake graphite that has been intercalated. Intercalation is the process by which an intercalant compound is introduced between the graphene layers of a graphite crystal.

Expandable graphite is produced by adding an oxidizer, a strong acid and an ancillary intercalation reagent either at room or other particular gradients of temperature for short, medium or long retention times to facilitate intercalation into the layers of the flakes and then to apply heat of up to 1000 °C to effect the expansion.

In general graphite from China expands at around 200 cm³/g and the finer fractions of <75µm typically yield rates of 40cm³/g. Three samples of concentrate from Lindi Jumbo achieved rates of between 490 cm³/g and 590 cm³/g for the 300µm and 500µm material and as high as 140 cm³/g for the <75µm flake which is more than three times the rates achieved for graphite sourced in China.

Flake Size	>500µm	>300µm	>180µm	>106µm	>75µm	<75µm
Ratio	29.3%	21.9%	42.6%	5.8%	0.3%	0.1%
800 °C	455 cm ³ /g	440 cm ³ /g	420 cm ³ /g	320 cm ³ /g	260 cm ³ /g	130 cm ³ /g
1000 °C	500 cm ³ /g	490 cm ³ /g	480 cm ³ /g	330 cm ³ /g	300 cm ³ /g	140 cm ³ /g

Table 1: Expansion volume after cold treatment and short retention time of test sample after screening +180 µm

Flake Size	>500µm	>300µm	>180µm	>106µm	>75µm	<75µm
Ratio	29.3%	21.9%	42.6%	5.8%	0.3%	0.1%
800 °C	590 cm ³ /g	485 cm ³ /g	410 cm ³ /g	310 cm ³ /g	245 cm ³ /g	120 cm ³ /g
1000 °C	500 cm ³ /g	500 cm ³ /g	475 cm ³ /g	360 cm ³ /g	280 cm ³ /g	140 cm ³ /g

Table 2: Expansion volume after cold treatment and medium retention time of test sample after screening +180 µm

In general, particle size is directly proportional to expansion ratio. Large flakes typically have higher expansion ratios than smaller flakes and with Lindi Jumbos large product ratio of up to 25% above Super Jumbo, the material will be highly marketable in the expandable industries.

An extract from the comprehensive NGS Trading and Consulting report highlights the unique metallurgical properties of Lindi Jumbo graphite: *“The intercalation and expansion tests of expandable graphite with flake graphite sample T2238 were very successful. We identified this flake graphite as very suitable for the production of expandable graphite and graphite foil. These very successful tests indicate the largest expansion volumes ever measured at our lab when testing the different flakes sizes from the mix of all flake sizes at different expansion temperatures.”*

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Market Information



Image 1: Rolls of graphite foil for use in battery cathode substrate (Educational purposes only this is not an asset of WKT)

The market for expandable graphite is increasing rapidly in line with the extended fields of application such as the foils, tape material and other sealant materials manufactured from expandable graphite. While foundry demand has currently narrowed, the fire retardant industry is expected to increase its consumption with stricter fire codes being implemented across China.

Furthermore, the increasing market for expandable graphite finds itself competing for suitable natural flake graphite supply with the nickel lithium battery industry, currently seeing unprecedented growth into electric vehicle and home electricity storage applications around the world.

Grade	Particle Size	Carbon %	pH Range	Typical Applications	Expansion Ratio (ml/g) min	Lindi Jumbo (ml/g)
3772	80%, > 300 µm	99	5 - 10	Construction	270	500
1722	80%, > 300 µm	95	1 - 6	Roofing	250	500
3570	80%, > 180 µm	90	5 - 10	Foams, polymers	215	475
3626	75%, > 75 µm 20%, <180 µm	90	5 - 10	Coatings	150	360
3538	70%, < 75 µm	80	5 - 9	Coatings	30	NT
1734	80%, < 75 µm	90	1 - 6	Foundry	200	140
3430	80%, < 250 µm	85	1 - 6	Foundry	80	NT
These grades and more available from Asbury. Contact us with special requirements. We continually develop new grades to satisfy our customer's needs.						Comparable Ratio

Table 3: Grades and applications of expandable graphite from Asbury Carbons showing the industry benchmark expansion ratios against Lindi Jumbo expansion ratios.

Source – Asbury Carbons - * Illustrative only. Walkabout Resources does not have a commercial arrangement with Asbury Carbons.

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Lindi Jumbo Graphite Project

Walkabout is fast tracking the exploration and development of the Lindi Jumbo Project to take advantage of forecast market conditions for Flake Graphite deposits with high ratios of Large and Jumbo flakes.

The Company has developed a proprietary processing technique which yields exceptionally high ratios of Large (+180µm), Jumbo (+300µm) and Super Jumbo (+500µm) flakes into concentrate. This premium product will allow higher than average revenues to be achieved.

The Company currently holds 70% of four licences at Lindi Jumbo with an option to acquire the remaining 30% share.

Details of Walkabout Resources' other projects are available at the Company's website, www.wkt.com.au

ENDS

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Competent Persons Statement

The information in this report that relates to exploration results is based on information compiled by Mr Andrew Cunningham who is a Member of the Australian Institute of Geoscientists and a Director of Walkabout Resources Ltd. Mr Cunningham 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 in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (The JORC Code). Mr Cunningham consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Metallurgical test work and results is based on information compiled by Dr Evan Kirby, a Competent Person who is a member of Australian Institute of Mining and Metallurgy. Dr Kirby is a full time employee of Metallurgical Management Services, a specialist metallurgical consultancy and an independent consultant to Walkabout Resources Ltd. Dr Kirby has sufficient experience that is relevant to the style of mineralogy and type of deposit under consideration and the typical beneficiation thereof. Dr Evan Kirby consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.