

28 August 2023

## 99.99% GRAPHITE BY THERMAL PURIFICATION

Sarytogan Graphite Limited (ASX: SGA, "the Company" or "Sarytogan") is pleased to report that thermal purification has now far exceeded battery anode material grade for the Sarytogan Graphite Deposit in Central Kazakhstan.

### Highlights

- Thermal purification of Sarytogan Graphite achieved **99.99%** Total Graphitic Carbon (TGC)
- The sample was a representative 50g sample of Sarytogan Graphite previously treated by flotation and alkaline roasting to 99.70% TGC.
- A Pre-Feasibility Study (PFS) is underway that will evaluate chemical vs thermal purification flowsheet options.



Figure 1 - Thermal purification reactor at TMEC

Sarytogan Managing Director, Sean Gregory commented:

*"We are thrilled with this 99.99% result that shoots the lights out when it comes to graphite purity by far exceeding the 99.95% specification for battery anode material. We can now add "ultra-high-purity" to the superlatives used to describe the giant, exceptionally high-grade, and now ultra-high-purity Sarytogan Graphite Deposit. The Pre-Feasibility Study is already underway to optimise the development parameters for this remarkable project."*

## Thermal Purification Tests

The results reported here are on a composite sample blended from six diamond drill holes; three from the Northern Graphite Zone (NGZ) and three from the Central Graphite Zone (CGZ) of the Sarytogan Graphite Deposit.

This composite sample was first chemically purified by Pro-Graphite GmbH (Pro-Graphite) in Germany with breakthrough results (refer ASX Announcement 6 December 2022, Table 1):

1. 84% TGC after simple grinding and flotation;
2. 99.70% TGC after alkaline roasting;
3. 99.70% after acid purification (without alkaline roasting); and
4. 99.87% TGC after alkaline-roasting and acid-purification.





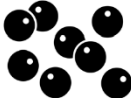


A 50g sample of Sarytogan Graphite previous treated by flotation and alkaline roasting only to 99.70% TGC (item (2) above) was sent from Pro-Graphite to Thermal and Material Engineering Centre (TMEC) in Ukraine for thermal purification.

The thermally purified graphite was then shipped to an accredited German laboratory for assay.

The thermally purified graphite achieved **99.99%** TGC purity. The titanium that was previously resistive to chemical purification was almost completely sublimated to only 5ppm titanium after thermal purification.

The **99.99%** grade achieved far exceeds the typical battery anode specification of 99.95% and may also be suitable for other high-value ultra-high-purity markets that achieve even higher prices.

Table 1 – Sarytogan Flowsheet steps and options showing TGC achieved at each step so far.

Mining	Grinding & Flotation	Alkaline Roasting	Purification Options	Spheroidization	Battery Market
  229 Mt @ 28.9% TGC <sup>1</sup>	  85.1% TGC <sup>2</sup>	  99.70% TGC <sup>3</sup>	Acid  99.87% TGC <sup>3</sup>		  99.95% TGC
			Thermal  <b>99.99% TGC<sup>4</sup></b>		

Refer ASX Announcements: <sup>1</sup> 27/3/23, <sup>2</sup> 16/8/22, <sup>3</sup> 6/12/22 and <sup>4</sup> this announcement.

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## Next Steps

The bulk flotation test underway in Australia (refer ASX Announcement 16 August 2023) will provide larger samples to scale up test-work at several international laboratories to optimise and simplify the project flowsheet. The larger samples will also enable spheroidization test-work (Table 2) and the manufacture of test coin-cell batteries.

The PFS underway will evaluate a range of trade-off studies including the thermal vs chemical purification options for the project flowsheet.

**This announcement is authorised by:**

**Sean Gregory**

**Managing Director**

**For further information contact: [admin@sarytogangraphite.com](mailto:admin@sarytogangraphite.com)**

## About Sarytogan

Sarytogan's namesake project is the Sarytogan Graphite Deposit, located in the Karaganda region of Central Kazakhstan. It is 170km by highway from the industrial city of Karaganda, the 4<sup>th</sup> largest city in Kazakhstan (Figure 2).

Sarytogan is also exploring the Kenesar Graphite Exploration Project in Akmola province Northern Kazakhstan, 40km from the city of Kokshetau (Figure 2). Both projects are serviced by excellent road, rail and power infrastructure and skilled workforce availability.



Figure 2 - Sarytogan and Kenesar Graphite Project locations

The Sarytogan Graphite Deposit was first explored during the Soviet era in the 1980s with sampling by trenching and diamond drilling. Sarytogan's 100% owned subsidiary Ushtogan LLP resumed exploration in 2018. An Indicated and Inferred Mineral Resource has recently been estimated for the project by AMC Consultants totalling **229Mt @ 28.9% TGC** (Table 2). Sarytogan has upgraded the mineralisation to **99.87%** purity by flotation, alkali roasting, and chemical purification (refer ASX Announcement 6 December 2022) and to **99.99%** purity by thermal purification (this announcement). Sarytogan is pursuing a strategy to supply high-quality anode material for the rapidly growing electric vehicle battery market. A PFS is underway.

Table 2 - Sarytogan Graphite Deposit Mineral Resource (> 15% TGC). Refer ASX announcement 27 March 2023.

Zone	Classification (JORC Code)	In-Situ Tonnage (Mt)	Total Graphitic Carbon (TGC %)	Contained Graphite (Mt)
<b>North</b>	Indicated	87	29.1	25
	Inferred	81	29.6	24
	Total	168	29.3	49
<b>Central</b>	Indicated	39	28.1	11
	Inferred	21	26.9	6
	Total	60	27.7	17
<b>Total</b>	Indicated	126	28.8	36
	Inferred	103	29.1	30
	Total	229	28.9	66

## Competent Person's Statement

The information in this report that relates to Exploration Results is based on information compiled by the Dr Waldemar Mueller, a full-time employee, Technical Director and major shareholder of the Company. Dr Mueller has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Mueller consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The information in this document that relates to metallurgical test work is based on, and fairly represents, information and supporting documentation reviewed by Mr Peter Adamini, BSc (Mineral Science and Chemistry), who is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Adamini is a full-time employee of Independent Metallurgical Operations Pty Ltd, who has been engaged by Sarytogan Graphite Ltd to provide metallurgical consulting services. Mr Adamini has approved and consented to the inclusion in this document of the matters based on his information in the form and context in which it appears.

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The information in this report that relates to Sarytogan Mineral Resources was first reported in ASX announcement dated 27 March 2023.

The Company confirms that it is not aware of any new information or data that materially affects the information included in relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.

## JORC Code, 2012 Edition – Table 1

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	Commentary																																			
<i>Sampling techniques</i>	<p>Quarter HQ diamond core was sampled for metallurgical testing.</p> <p>These tests were completed on a composite of the following samples:</p> <table border="1"> <thead> <tr> <th>Zone</th> <th>Hole</th> <th>From</th> <th>To</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>St-12</td> <td>117.2</td> <td>140.2</td> <td>35.2%</td> </tr> <tr> <td>North</td> <td>St-30</td> <td>11.0</td> <td>33.0</td> <td>23.5%</td> </tr> <tr> <td>North</td> <td>St-41</td> <td>6.0</td> <td>22.0</td> <td>33.8%</td> </tr> <tr> <td>Cent</td> <td>St-60</td> <td>10.0</td> <td>48.0</td> <td>30.8%</td> </tr> <tr> <td>Cent</td> <td>St-61</td> <td>11.0</td> <td>26.3</td> <td>36.0%</td> </tr> <tr> <td>Cent</td> <td>St-65</td> <td>11.0</td> <td>18.1</td> <td>32.8%</td> </tr> </tbody> </table>	Zone	Hole	From	To	Grade	North	St-12	117.2	140.2	35.2%	North	St-30	11.0	33.0	23.5%	North	St-41	6.0	22.0	33.8%	Cent	St-60	10.0	48.0	30.8%	Cent	St-61	11.0	26.3	36.0%	Cent	St-65	11.0	18.1	32.8%
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<i>Drilling techniques</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.																																			
<i>Drill sample recovery</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.																																			
<i>Logging</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.																																			
<i>Sub-sampling techniques and sample preparation</i>	<p>Quarter HQ diamond drill core was sampled for metallurgical testing.</p> <p>Most core was cut using an electric diamond saw and some more friable intervals were split manually. All core for sampling was pre-marked with the cut line, and only one side of the core was sent for assay to maintain consistency.</p> <p>The core sampling for metallurgical testing was of continuous minable intervals from 7m to 38m thick.</p>																																			
<i>Quality of assay data and laboratory tests</i>	The metallurgical result reported here took a 50g sample at 99.70% after flotation and alkaline-roasting (refer ASX Announcement 6 December 2022).																																			

Criteria	Commentary
	<p>The sample was sent from Pro-Graphite to Thermal and Engineering Material Centre (TMEC) in Ukraine.</p> <p>TMEC treated the sample at about 3000 degrees Celsius for 25 minutes in an inert atmosphere of argon in a 5 kW laboratory resistive furnace.</p> <p>The purified graphite was then shipped to an accredited German laboratory for analysis by Inductively Coupled Plasma (ICP) assay and Loss on Ignition (LOI).</p>
<i>Verification of sampling and assaying</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Location of data points</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Data spacing and distribution</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Orientation of data in relation to geological structure</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Sample security</i>	Control over the security of samples is carried out throughout the entire process. Each sample is assigned a unique number. The core samples selected after logging are transferred (with the corresponding orders and sample registers) to the laboratories.
<i>Audits or reviews</i>	<p>A desktop review of the 2019 sampling techniques and data was carried out by CSA Global. The Competent Person from CSA Global also visited the site and sample preparation laboratory during August 2022.</p> <p>The metallurgical results have not been audited; however the flotation results have now been replicated by several laboratories.</p>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
<i>Mineral tenement and land tenure status</i>	The exploration licence 1139-R-TPI (1139-P-ТПИ) was issued to Ushtogan LLP on 14/08/2018 and confirmed by 5406-TPI (5406-ТПИ) contract on 26/10/2018. The contract was extended in June 2022 for a further 3 years to June 2025. The exploration concession covers 70 km <sup>2</sup> .
<i>Exploration done by other parties</i>	<p>In the period from 1985 to 1987, geological exploration was carried out by the Graphite party of the Karaganda State Regional geological expedition.</p> <p>Since 2019, exploration drilling is being carried out by Ushtogan LLP a 100% owned subsidiary of Sarytogan Graphite Limited.</p>
<i>Geology</i>	Structurally, the Sarytogan site is confined to the western and southwestern wing of the Shiyozek fold, complicated by a large curved Sarytoganbai syncline which trends

Criteria	Commentary
	<p>in northeast and east directions.</p> <p>In general, the Sarytogan site is a large, over-intrusive zone; the volcanic and sedimentary rocks developed here have undergone extensive contact metamorphism; volcanogenic and terrigenous rocks are transformed into quartz-biotite, quartz-sericite hornfels; carbonaceous rocks are either altered into hornfels, or underwent significant graphitisation, and along contacts with intrusive granite domes, quartz- tourmaline and tourmaline hydrothermal rocks of the greisen type are developed.</p> <p>The deposit belongs to the black shale regional-metamorphic type and represents a carbon-bearing conglomerate sequence with a greisen zone with a thickness of more than 80 m in the over-intrusive zone of the granite massif that compose the Sarytoganbai syncline. Host rocks include graphite siltstone and graphite shale.</p>
<i>Drill hole Information</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Data aggregation methods</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Relationship between mineralisation widths and intercept lengths</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Diagrams</i>	Refer ASX Announcement 15 August 2022 and Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 for drilling information and results.
<i>Balanced reporting</i>	The metallurgical test-work program has been exploratory in nature, testing several different pathways. The results of the preferred pathways are presented here.
<i>Other substantive exploration data</i>	<p>Since 2019, drilling, analytical, metallurgical studies of small bulk samples and petrographic studies have been carried out at the deposit.</p> <p>The Prospectus dated 23 February 2022 and published on the ASX on 14 July 2022 also details historical metallurgical tests on the Sarytogan Graphite Deposit. Other substantive exploration data has been published in drilling results, mineral resource estimates and metallurgical tests as cross referenced in the text.</p>
<i>Further work</i>	<p>Further metallurgical test work is underway and ongoing.</p> <p>Bulk flotation test work is underway.</p> <p>A Pre-Feasibility Study is underway.</p>

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