

30 October 2023

AGGLOMERATES PRODUCED FOR THERMAL PURIFICATION SCALE UP

Sarytogan Graphite Limited (ASX: SGA, "the Company" or "Sarytogan") is pleased to advise that graphite agglomerates have been successfully manufactured as an important precursor to industrial-scale thermal purification of the Sarytogan Graphite Deposit in Central Kazakhstan.

Highlights

- Our American laboratory partner has produced 1kg of agglomerates from Sarytogan Graphite flotation concentrates.
- The agglomerates are an important step for the scale up of the thermal purification flowsheet option, which has previously achieved ultra-high purity of **99.99%** at the benchtop scale (refer ASX Announcement 28th August 2023).
- Bulk concentrates are presently being packaged into 3-6kg lots for dispatch by our Australian lab partner to laboratories worldwide for further scale up of purification, demonstration of spheroidization and quantification of battery performance.
- Pre-Feasibility Study (PFS) progressing well, due for completion no later than Q3 2024.



Figure 1 – Agglomerates of Sarytogan Graphite ready for up-scaled thermal purification.

Sarytogan Managing Director, Sean Gregory commented:

"The process development for the Sarytogan Graphite Project has been a truly international effort with valuable input from laboratories in Australia, Germany, Ukraine and now the United States of America. This result is focussed on the physical properties important for efficient thermal purification at industrial scale. The next step will be to replicate the ultra-high purity result of 99.99% previously achieved on 50g of Sarytogan Graphite at a larger scale of several kilograms using the bulk concentrate that is now available."

Flowsheet Options

The PFS is currently considering two main flowsheet options for the Sarytogan Graphite Project (Figure 2). Chemical purification was first tested by one of our German laboratory partners who achieved up to **99.87%** Total Graphitic Carbon (TGC; refer ASX announcement 6th December 2022). Thermal Purification was then tested by our Ukrainian laboratory partner who achieved a remarkable **99.99%** TGC, far exceeding the grade specification of 99.95% TGC for battery anodes (refer ASX announcement 28th August 2023).



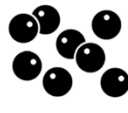

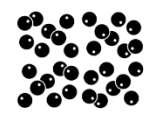

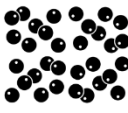


Mining	Flotation	Thermal Flowsheet Option			Anodes
 Low Strip Giant Resource 229 Mt @ 28.9% TGC ¹	 50ktpa Modules 80% TGC ² Saleable Micro-Crystalline Graphite	 Demonstrated ³	 7ktpa Modules 99.99% TGC ⁴ Achieved	 USPG Product Hi-Purity Fine By-Product	 Target 99.95% TGC Uncoated Spherical Purified Graphite (USPG)
		Chemical Flowsheet Option			
		 Spheres to Purification Fine By-Product	 99.7% TGC ⁵ Achieved	 99.87% TGC ⁵ Achieved To Date	

Figure 2 - Flowsheet Options for the Sarytogan Graphite Project.

Refer ASX Announcements: ¹ 27/3/23, ² 16/8/22, ³ this announcement, ⁴ 28/8/23 and ⁵ 6/12/22 for details.

Thermal Purification

Thermal purification involves heating graphite from 2,400° to 3,000° Celsius for a short duration in a fluidised bed reactor. While we have previously demonstrated the thermal purification of ultra-fine graphite at the 50g scale without agglomeration, scale up to an industrial scale requires the graphite to be agglomerated. The agglomerates will allow the hot gases removing the sublimated diluents from the graphite to permeate upwards through and out of the fluidised bed reactor.

Thermal purification has several benefits compared to other purification methods:

1. The grade specification for Uncoated Spherical Purified Graphite has been comfortably exceeded (**99.99%** vs 99.95% TGC).
2. A high purity (**99.99%** TGC) fine by-product will be produced for high value specialised markets.
3. The optimal thermal reactor size is about 7,000 tpa, meaning a lower-capital small scale start-up of one module will be possible, with the giant and exceptionally high-grade Mineral Resource of **229Mt @ 28.9%** TGC catering for many possible future expansions.
4. The off-gas treatment system may be able to crystalize valuable metals for potential by-product streams.

Furthermore, Kazakhstan is an excellent place to establish a thermal purification plant as low cost of operations will be possible, with skilled labour readily available and lowest quartile power available. High and medium voltage powerlines run within a few kilometres of the project and traditional power sources are supplemented by renewable energy such as the 50MW solar farm operating only 100km from the project.

Agglomerates Produced

A composite 1kg sample of floatation concentrates from several bench-scale flotation tests was shipped from our Australian to our American lab partner. A binder was added to the Sarytogan Graphite and processed to produce the agglomerates shown in Figure 1.

Next Steps

As reported in our recent Quarterly Activities and Cash Flow Report, a bulk concentrate has been successfully produced by our Australian laboratory partner. The concentrate is presently being packaged into 3-6kg lots for dispatch to laboratories worldwide for further scale up of purification, demonstration of spheroidization and quantification of battery performance.

The PFS is progressing well and is scheduled for completion no later than Q3 2024.

This announcement is authorised by the Board of Directors of the Company.

Sean Gregory

Managing Director

About Sarytogan

Sarytogan's namesake project is the Sarytogan Graphite Deposit, located in the Karaganda region of Central Kazakhstan. It is 190km by highway from the industrial city of Karaganda, the 4th largest city in Kazakhstan (Figure 3).

Sarytogan is also exploring the Kenesar Graphite Exploration Project in Akmola province Northern Kazakhstan, 40km from the city of Kokshetau (Figure 3).



Figure 3 - 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 totalling **229Mt @ 28.9% TGC** (Table 1). 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 (refer ASX Announcement 28/8/2023). A PFS as part of its strategy to supply high-quality anode pre-cursor material for the rapidly growing electric vehicle battery market is well advanced and scheduled for completion no later than Q3 2024.

Table 1 - 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)
North	Indicated	87	29.1	25
	Inferred	81	29.6	24
	Total	168	29.3	49
Central	Indicated	39	28.1	11
	Inferred	21	26.9	6
	Total	60	27.7	17
Total	Indicated	126	28.8	36
	Inferred	103	29.1	30
	Total	229	28.9	66

Compliance Statement

The information in this report that relates to Exploration Results is cross referenced to the relevant announcements in the text. These reports are available at www.asx.com.au. 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.