

11 June 2024

HIGH PERFORMING CSPG BATTERY ANODES

Sarytogan Graphite Limited (ASX: SGA, "the Company" or "Sarytogan") is pleased to report high performance for lithium-ion batteries made with anodes of Coated Spherical Purified Graphite (CSPG) from Sarytogan Graphite.

Highlights

- Coin-cell batteries manufactured from CSPG have now cycled 100 times.
- Coating has significantly improved lithium-ion battery performance (Table 1).
- Coating improves market pricing from approximately US\$2,500/t to US\$8,000/t.
- Pre-Feasibility Study on track for completion no later than September 2024.

Table 1 - Comparison of lithium-ion battery performance for USPG, CSPG and industry benchmarks

	Performance Benchmark	USPG (ASX 8/2/24, 20/5/24)	CSPG (this result)
Reversible capacity (mAh/g)	330 - 345	342 - 347	354
Irreversible capacity loss	10%	N/R	11%
Capacity retained after 100 cycles	98%	97.3%	98.9%
Extrapolated cycles to 80% threshold	1,000	Up to 1,000	More than 1,600

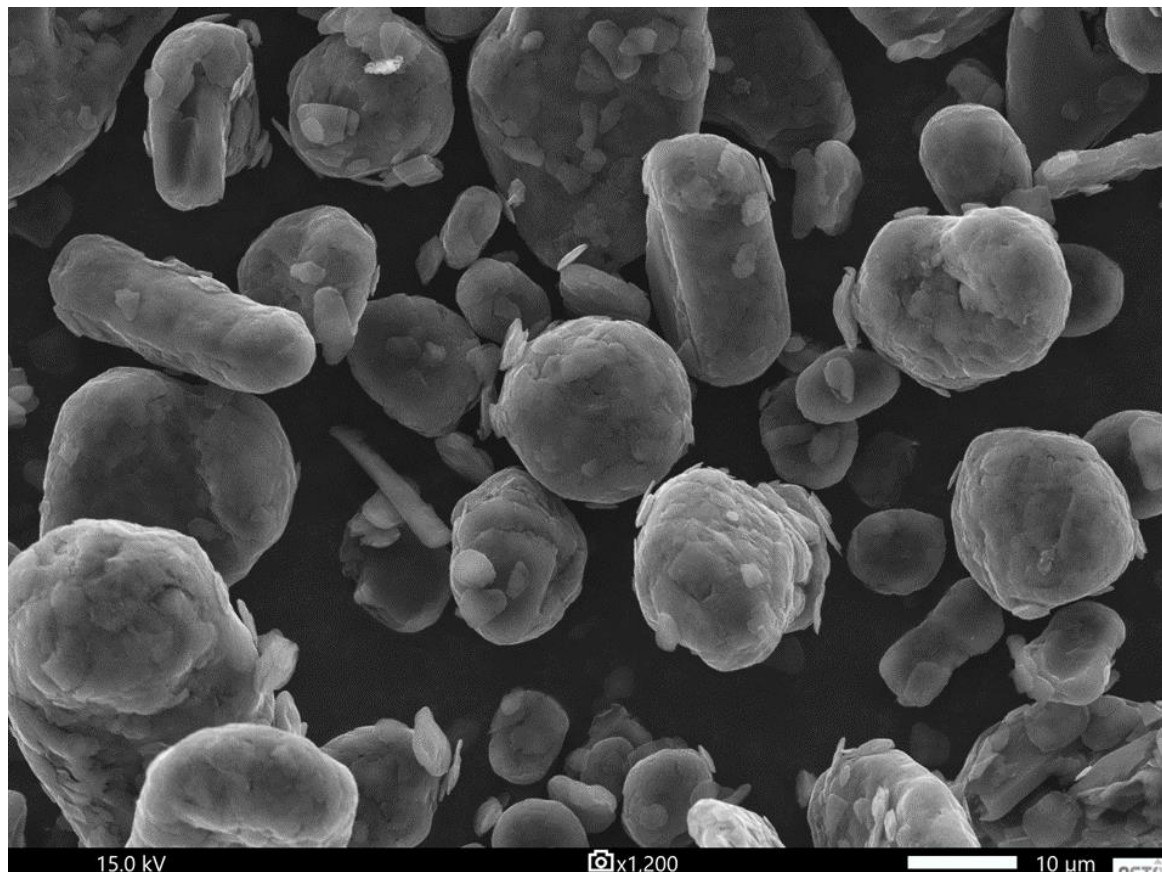


Figure 1 - Sarytogan Coated Spherical Purified Graphite

Sarytogan Managing Director, Sean Gregory commented:

"We are delighted with the high performance demonstrated by Sarytogan Graphite in lithium-ion battery anodes. The successful demonstration of coating adds a premium priced element to our battery product offering and opens the door to future direct relationships with battery manufacturers and OEMs. Coating has therefore been added to the flowsheet for the Pre-Feasibility Study which is progressing well and is on track for completion no later than September this year."

Previous Results

Sarytogan previously reported battery performance of lithium-ion batteries made with Uncoated Spherical Purified Graphite (USPG) (refer ASX announcement 20 May 2024). Performance exceeded all expectations with the reversible capacity of 342-347 mAh/g (Table 1) being superior to many synthetic graphite products used as the anode in lithium-ion batteries for electric vehicles.

Coating

Spherical graphite is routinely coated for improved performance as the anode in lithium-ion batteries for use in electric vehicles.

Five Nines Sarytogan Graphite (the same sample reported in ASX Announcement 5 March 2024) was spheroidized and wet classified. A representative classified fraction was coated with soft carbon giving ideal spheres with a d50 size of 14 micron and tap density of 0.95 g/cc (Figure 1). The main objective of the coating is to smooth the surface of the spheres (Figure 2). In this case, the surface area was reduced to 6.7 m²/g measured by the BET method.

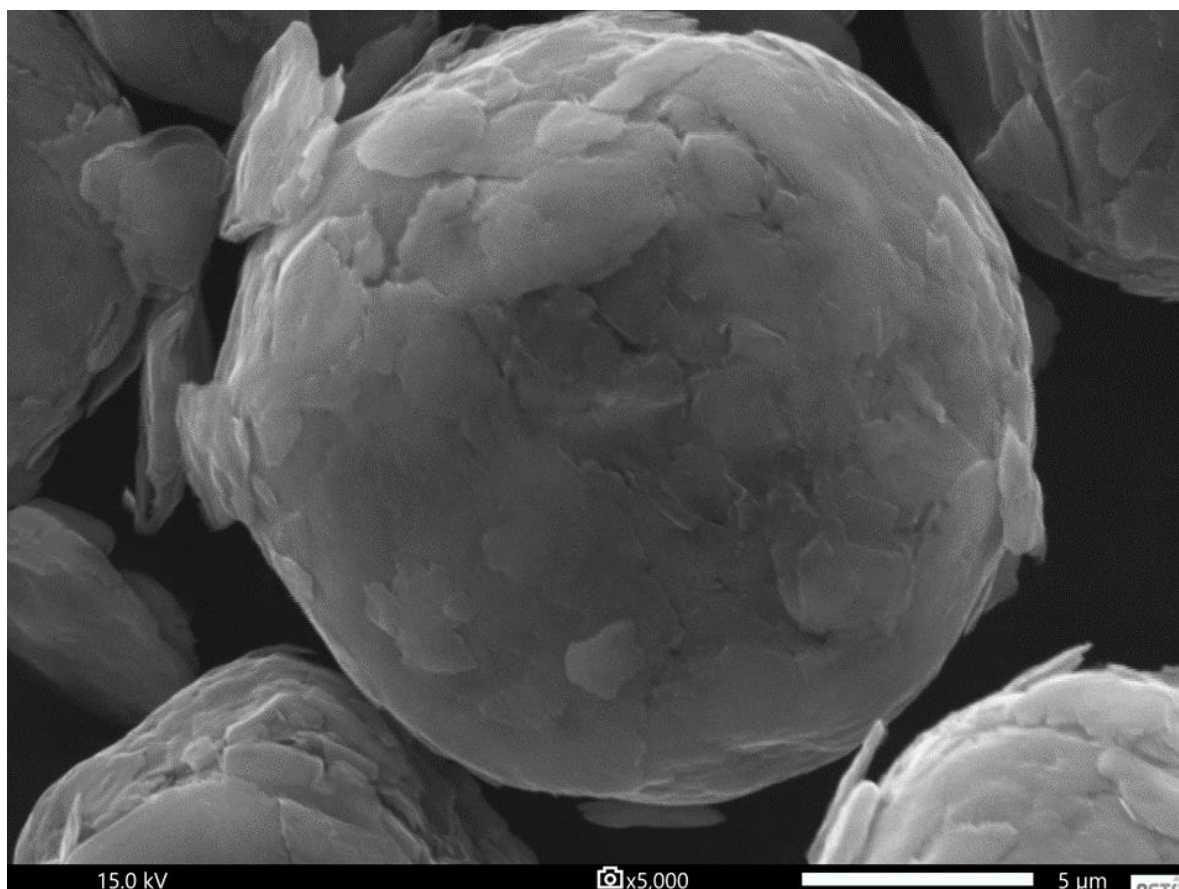


Figure 2 - Sarytogan Coated Spherical Purified Graphite Close Up

Battery Performance

Coin cell batteries were manufactured with SarytoGAN CSPG. The batteries have been charged and discharged over a 10-hour cycle 100 times.

The Irreversible Capacity Loss (ICL), a measure of the difference between the capacity of the first charge and first discharge, is reported as 11%. This is a good result for the first attempt at coating, being only just above the industry benchmark of 10% for high performing lithium-ion batteries. A thicker coating of soft carbon will be added in future optimisation tests to further reduce the surface area and ICL.

The results have realised a significant improvement in the reversible capacity to 354 mAh/g, well above the values of many synthetic graphite products used in the anodes of lithium-ion batteries for electric vehicles (Table 1). This performance has endured with 98.9% capacity still available after 100 cycles. Extrapolating this result, more than 1,600 cycles are expected before the typical useful threshold of 80% capacity is reached: an outstanding result.

SarytoGAN Flowsheet and Product Mix

SarytoGAN plans to produce three product types to get as many units of carbon into as many markets as possible from its giant and exceptionally high-grade Mineral Resource (Table 2).

The upstream beneficiation using grinding and flotation is planned to produce microcrystalline graphite at 80-85% Carbon (C) at the mine site (Figure 3). Some of the micro-crystalline graphite will be diverted for sale into traditional industrial uses such as refractories, crucibles, foundries, friction parts, pencils, and lubricants (Refer ASX Announcement 22 May 2024).

The rest of the flotation concentrate is planned to be processed downstream by thermal purification to Ultra High Purity Fines (UHPF) for advanced industrial uses. Spheroidization then shapes the graphite to Uncoated Spherical Purified Graphite (USPG) and now coating produces CSPG for lithium-ion battery anodes for electric vehicles and other advanced applications.

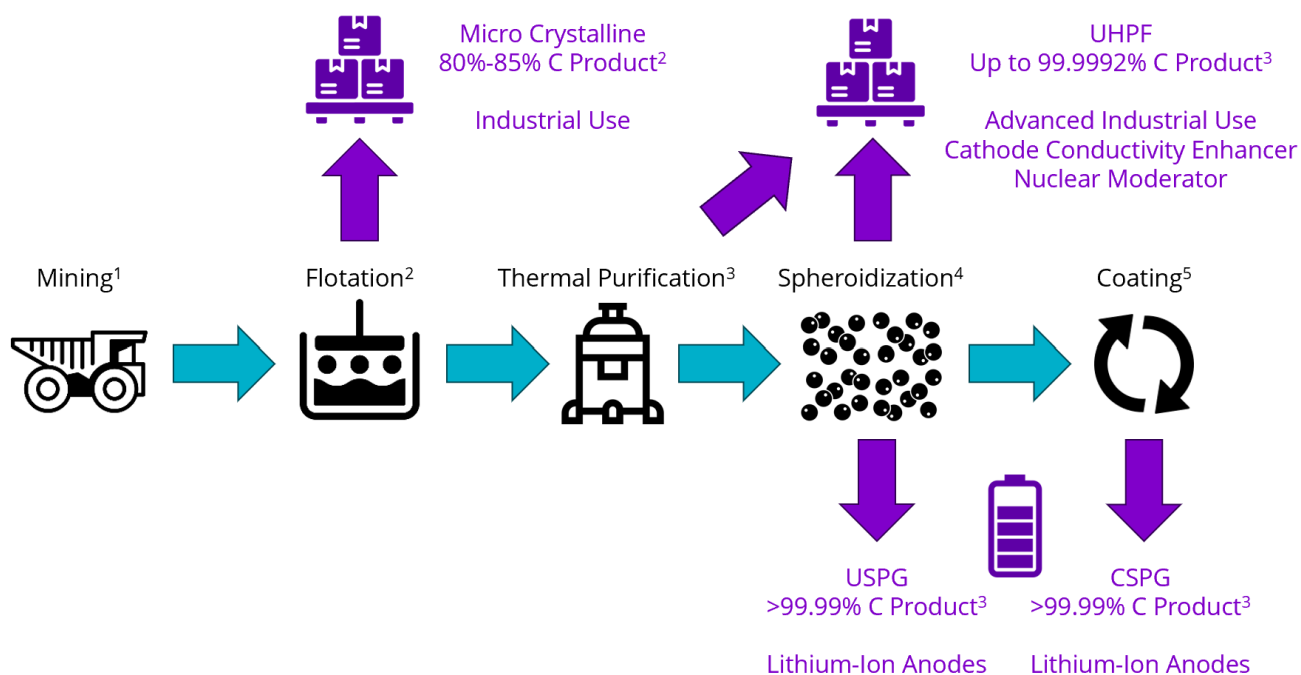


Figure 3 – SarytoGAN Graphite Simplified Flowsheet and Product Mix

Refer ASX Announcements: ¹ 27/3/23, ² 13/11/23, ³ 5/3/23, ⁴ 19/12/23, ⁵ this announcement

Marketing

USPG is currently predominantly sold to China, South Korea and Japan where it is normally coated for use in high performing lithium-ion batteries.

The addition of CSPG to Sarytogan's product offering is expected to facilitate the establishment of direct relationships with battery manufacturers and OEMs in Europe and America.

Furthermore, the market price for CSPG is approximately US\$8,000/t, a significant value-add over the pricing of USPG at approximately US\$2,500/t.

Therefore, coating has been added to the flowsheet for the Pre-Feasibility Study.

Next Steps

These tests are all important inputs into the Pre-Feasibility Study which is on-track to be completed during no later than September this year.

This announcement is authorised by:

Sean Gregory

Managing Director

admin@sarytogangraphite.com

About Sarytogan

The Sarytogan Graphite Deposit is 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 4).



Figure 4 - Sarytogan Graphite Deposit location.

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) (refer ASX Announcement 27 March 2023). Sarytogan has upgraded the mineralisation up to **99.9992% C** "five nines purity" by thermal purification, without any chemical pre-treatment (refer ASX Announcement 5 March 2024). Furthermore, spheres of graphite have been made at a high yield (refer ASX Announcement 19 December 2023) and performance lithium-ion batteries has been demonstrated (refer ASX Announcement 8 February 2024). A Pre-Feasibility Study 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 September 2024.

Table 2 - Sarytogan Graphite Deposit Mineral Resource (> 15% TGC).

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 other 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.