

ASX Release

August 12, 2020

Renascor Resources Ltd
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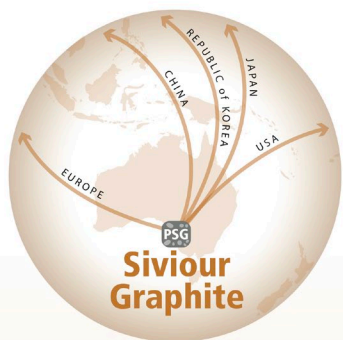
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Sivour Purified Spherical Graphite Meets Anode Manufacturer Specifications

Highlights

- Renascor's recently completed Battery Anode Material Study¹ confirmed that Sivour is able to produce Purified Spherical Graphite (PSG) at amongst the lowest cost of any graphite development in the world.
- Independent qualification tests now confirm that Sivour PSG meets product specifications required for integration of PSG into lithium-ion battery anodes.
- Tests undertaken by a German graphite specialist have demonstrated that Sivour PSG meets strict anode specifications for physical and chemical properties, including particle size, surface area, tap density and impurities.
- The tests, which were performed on Sivour spheronised graphite that had been purified to 99.97% carbon PSG through caustic roast purification, further support Renascor's ability to process Sivour graphite into high-value PSG through the more environmentally-friendly caustic roast purification method.
- PSG is experiencing significant demand growth, with a forecasted annual growth rate of up to 29% per year through 2030².
- The test results validate Renascor's plan to be a low-cost supplier of PSG in the first integrated in-country mine and battery anode materials operation outside of China.
- The results are an important step in qualifying Sivour PSG for use by anode manufacturers and will be used to support continuing offtake discussions.

Renascor Resources (**ASX: RNU**) is pleased to announce the results of independent tests that confirm that Sivour PSG meets strict physical and chemical product specifications required by lithium-ion battery anode manufacturers.

The test results, undertaken by German graphite specialist ProGraphite GmbH (**ProGraphite**), further support Renascor's ability to produce high-value PSG through a more environmentally-friendly caustic roast purification method as part of the first integrated in-country mine and battery anode materials operation outside of China.

Commenting on the results, Managing Director David Christensen stated:

"Today's results demonstrate that Sivour graphite can be upgraded to strict battery industry specifications for Purified Spherical Graphite by adopting the cost competitive and eco-friendly process adopted in our Battery Anode Material Study.

These results are an important step in qualifying Sivour Purified Spherical Graphite for use by lithium-ion battery anode manufacturers and will be used to support ongoing offtake discussions."

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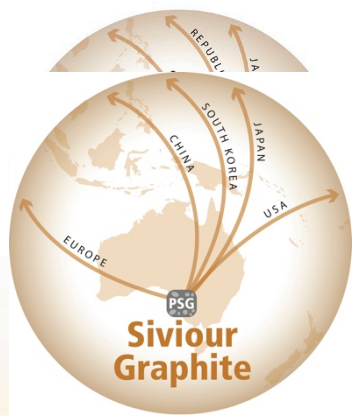
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Background

Renascor’s Battery Anode Material Study proposes a vertically integrated battery anode material operation in South Australia that combines a mining operation at Renascor’s 100%-owned Siviour Graphite Project with a downstream processing operation to produce PSG for use in lithium-ion battery anodes. See Figure 1.

Renascor’s Integrated Battery Anode Material Manufacturing Operation

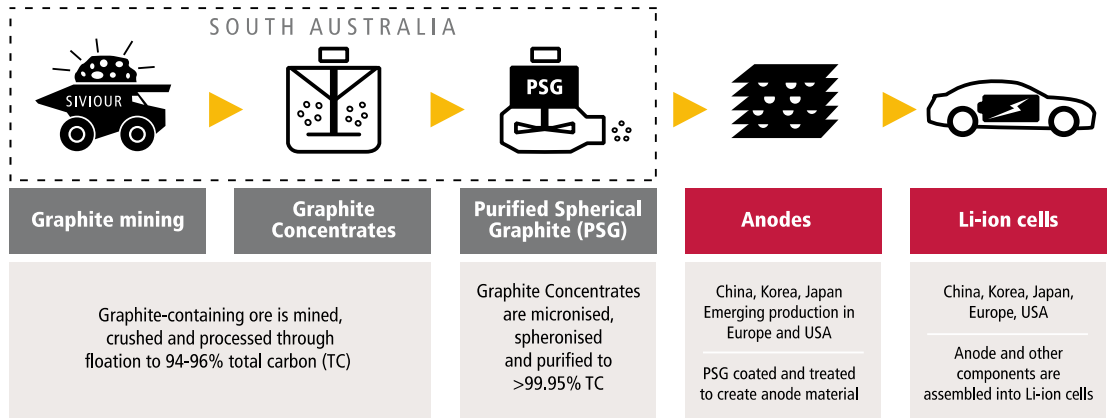


Figure 1. Graphite to anode supply chain, showing activities included in Renascor’s proposed integrated Battery Anode Material manufacturing operation

By leveraging off the comparatively low-cost of Siviour Graphite Concentrates as feedstock for PSG production, and co-locating the downstream operation in Australia, the Battery Anode Material Study shows a globally competitive gross operating cost of US\$1,989 per tonne of PSG³.

Renascor achieves a relatively low PSG unit operating cost in large part because the battery anode materials operation obtains the key raw material, Graphite Concentrates, at Renascor’s operating cost, rather than the market price that would be charged by third party suppliers.

Accordingly, Renascor’s cost for obtaining Graphite Concentrates for downstream processing into PSG is equal to Siviour’s projected life of mine unit operating cost of US\$355 per tonne.⁴

The current market value for Graphite Concentrates,⁵ is US\$540 per tonne,⁶ and over the life of the battery anode material operation, the average market value of Graphite Concentrates is projected to be US\$898 per tonne.⁷

This price difference for Graphite Concentrate feedstock has an exaggerated impact on PSG operating costs primarily because only half of the Graphite Concentrates used as feedstock are spheronised to PSG during the milling process (i.e., a ~50% mass yield from Graphite Concentrate to PSG).⁸ In other words, twice as much Graphite Concentrate feedstock is required compared to the resultant PSG production.⁹

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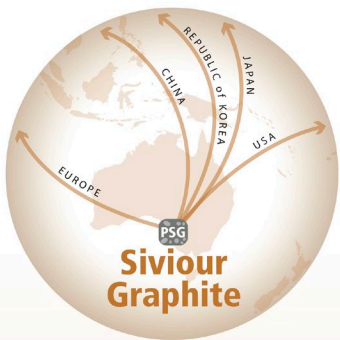
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As shown in Figure 2, the potential PSG unit operating cost savings attributable to using Siviour Graphite Concentrates is US\$385 per tonne based on current Graphite Concentrate prices.

With Graphite Concentrate prices projected to grow over the life of the battery anode material operation,¹⁰ the potential cost savings from sourcing Graphite Concentrate from Siviour grows to over US\$1,150 per tonne over the life of the operation.

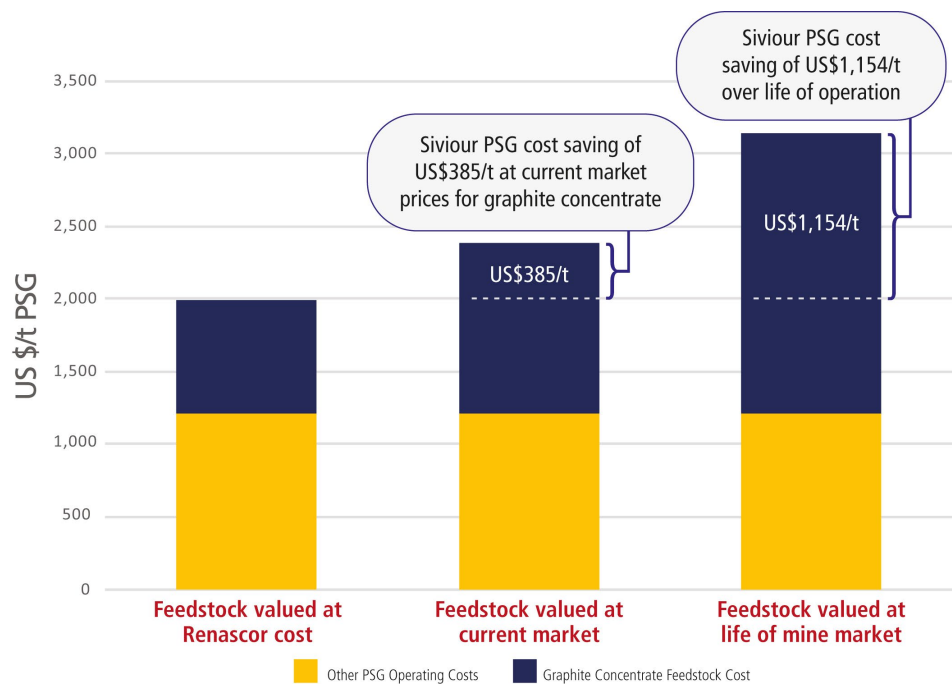


Figure 2. Impact of Graphite Concentrate feedstock cost on unit PSG operating costs

Purified Spherical Graphite and Customer Specifications

For the Battery Anode Material Study, Renascor adopted a caustic roast purification technique for upgrading Siviour Graphite Concentrates to +99.95% carbon (C) PSG, the minimum purity level generally accepted for incorporation of PSG into lithium-ion battery anodes.

Caustic roasting involves combining Siviour graphite with a caustic solution and then roasting at low temperature before being leached with hydrochloric acid. An important advantage of the caustic roasting process is that it offers a more environmentally friendly process to purify graphite to battery-grade than the purification technique generally used in China, which uses hydrofluoric acid.

Renascor recently released the results of purification tests using the caustic roast purification technique adopted in the Battery Anode Material. The tests, undertaken by independent specialist graphite ProGraphite, successfully produced samples of battery-grade purity graphite, achieving 99.97% C in both cases (both higher than 99.95% C used in the Battery Anode Material Study). See Renascor ASX Announcement dated 14 July 2020.

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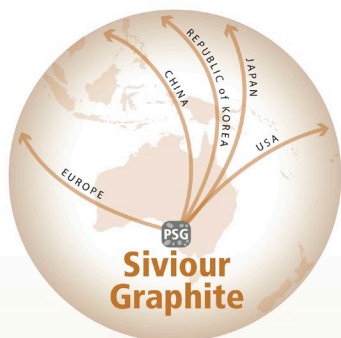
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Following completion of the purification tests, ProGraphite undertook additional tests to assess whether Siviour PSG samples meet additional physical and chemical product specifications imposed by lithium-ion battery anode manufacturers for integration of PSG into their anode manufacturing process.

Tests were performed on samples of Graphite Concentrates that had been:

- Spheronised to approximately 16 µm, a size specification common for lithium-ion battery anode manufacturers, and
- Purified to battery-grade (+99.95% C) using caustic roasting, the purification technique adopted in the Battery Anode Material Study.

Battery anode manufacturers generally have unique product specifications that are dependent on their own manufacturing processes and the requirements of battery manufacturers they supply. Typical physical and chemical criteria involve size, tap density, surface area, carbon purity, impurities and moisture.

The Siviour PSG sample, which adopted a mid-point size specification of 16 µm, meets or exceeds anode specifications for all physical and chemical properties tested.

Parameter	Siviour PSG	
Size (µm)	16	
Tap density (g/cm ³)	0.92	
Surface area (m ² /g)	4.5	
Fixed carbon (%)	99.97	
Impurities (ppm)	Al	2.2
	Ca	10.4
	Cu	0.9
	Fe	7.9
	S	12.8
	Si	17.2
	Zn	0.3
Moisture (%)	0.04	

Table 1. Physical and Chemical properties of PSG produced from Siviour Graphite Concentrates

Significance

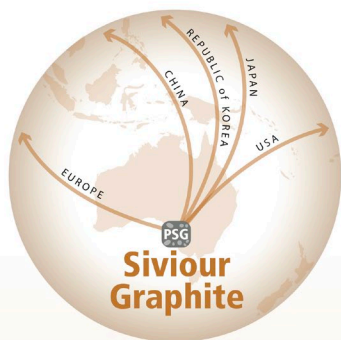
The results of the customer specification tests are significant because they provide independent verification that PSG produced from Siviour Graphite Concentrates, and using operating parameters adopted in the Battery Anode Material Study, meets or exceeds common quality control specifications required for use of PSG by lithium-ion battery makers.

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The results also provide the basis for adjusting Renascor’s production parameters to further meet quality control requirements for other PSG products, including PSG sized to 10 μm , a less common, but premium-priced PSG product, and for producing larger scale samples for customer qualification purposes.

Next steps

Renascor plans to use the results of the recent test work to support on-going offtake discussions and to produce larger scale samples for qualification by potential customers

Bibliography

1. Renascor ASX announcement dated 11 November 2019, “*Siviour Definitive Feasibility Study*”
2. Renascor ASX announcement dated 1 July 2020, “*Renascor Announces Battery Anode Material Manufacturing Operation*”
3. Renascor ASX announcement dated 14 July 2020, “*Purification Tests Confirm Battery-Grade PSG from Siviour*”

Renascor confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Renascor confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcement.

This report may contain forward-looking statements. Any forward-looking statements reflect management’s current beliefs based on information currently available to management and are based on what management believes to be reasonable assumptions. It should be noted that a number of factors could cause actual results, or expectations to differ materially from the results expressed or implied in the forward-looking statements.

This ASX announcement has been approved by Renascor’s Board of Directors and authorised for release by Renascor’s Managing Director David Christensen.

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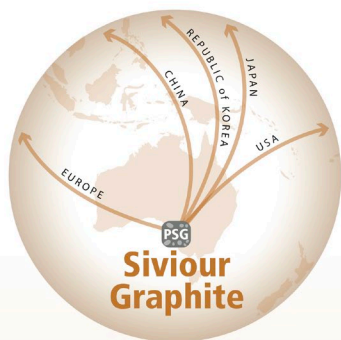
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About Renascor

Renascor Resource is an Australian-based company focused on the discovery and development of viable mineral deposits. Renascor has an extensive tenement portfolio in South Australia, including our flagship project, the Sivour Graphite Project.

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¹ See Renascor ASX announcement dated 1 July 2020.

² Source: Benchmark Mineral Intelligence, November 2019.

³ See Renascor ASX announcement dated 1 July 2020, pp 3-4.

⁴ Source: Sivour Concentrate Definitive Feasibility Study (Sivour Concentrate DFS). Renascor ASX announcement dated 11 November 2019. The estimated LOM average operating cost of US\$355 per tonne of Graphite Concentrates consists of the following breakdown: (1) an average LOM cost of US\$361 per tonne of Graphite Concentrates Feedstock, and (2) average LOM cost of US\$349 per tonne of Graphite Concentrates sold to the market.

⁵ Renascor's Financial Model assumes -80 mesh and -100 mesh Graphite Concentrate as feedstock to PSG operations. For the purpose of Figure 2, fair market value of -100 mesh is being adopted for illustration purposes.

⁶ Source: Benchmark Mineral Intelligence (July 2020).

⁷ Source: Sivour Concentrate DFS. Fair market value of US\$898 per tonne is based on life of mine projected price forecast from Benchmark Mineral Intelligence for -100 mesh 94%-95% C Graphite Concentrate. See note 5.

⁸ The Battery Anode Material Study assumes that Graphite Concentrates that do not pass to the purification for sale as PSG are sold as a bi-product for sale into the recarburiser market. Renascor is also assessing opportunities for further processing for sale into the market for high purity fines and ultra-high purity fines.

⁹ During the purification process, additional "losses" occur, as spheronised Graphite Concentrates are upgraded from purity levels of typically 94%-95% to +99.95% C.

¹⁰ See Sivour Concentrate DFS, p. 28.