

22 February 2021

Tirupati Graphite plc ('Tirupati' or the 'Company')
Successful Trials of Battery Grade Spherical Graphite

Tirupati Graphite plc, the fully integrated, revenue generating, specialist graphite producer and graphene developer with operations in Madagascar and India, is pleased to announce that it has successfully completed trials and tests for the manufacture of battery grade spherical graphite ('SPG'), used in the anode of lithium-ion batteries ('LiB'), in tandem with a globally recognised German manufacturer of spheroidisation and micronisation equipment, achieving significant results in the end SPG product.

Overview

- Outstanding results generated from a series of trials and tests for manufacturing LiB grade SPG with a leading German manufacturer of spheroidisation and micronisation equipment;
 - Tirupati's Madagascar flake graphite purified to >99.95%C using its proprietary, zero-hydrofluoric acid, non-pyrometallurgical, zero-waste purification technology used as input material;
 - Yield of up to 68.4% and average of 45.8% spherical graphite from feedstock, compares favourably to generally reported yield of standard Chinese equipment and technology of c.35%;
 - Tapped density of up to 962 grams/litre ('g/l') and average of 933g/l, falling in the higher level of the required range by industrial buyers of battery grade SPG.
- Commissioned development and optimisation for the first in a series of commercial scale 3,000tpa SPG manufacturing plants with German specialist and initiated discussions with prospective buyers of SPG including automobile majors, battery and anode manufacturers.
- Fast-evolving growth in the global electric vehicle ('EV') sector prompts the Company to fast track the establishment of its first SPG capacity ahead of the current July 2022 target.
- Well positioned to capitalise upon being an eco-friendly ex-China source of SPG, 100% of which is currently supplied by China.
- The Company believes its unique green technologies in all areas of operations provide a competitive edge on the developing green supply chain for EVs.
- Countries globally launching packages for faster EV adoption and supply chain development due to increasing growth of EV adaptation.

Shishir Poddar, Executive Chairman & CEO of Tirupati Graphite, said, *"With EV markets evolving faster than ever before and an increased focus on reducing emissions from mobility, coupled with the daily evolving geo-political situations, it is an extremely important and opportune time for us to concentrate our efforts in fast tracking the development of commercial capacities for spherical graphite manufacturing. Our green credentials with zero-waste purification technology give us the ability to manufacture and supply our SPG products to EV makers as a preferred source, and we are very well positioned to benefit as an eco-friendly ex-China source of this critical material.*

“Global leaders are driving the exponential growth worldwide in EV adoption in order to achieve targets under the Paris Agreement, amongst other accords. While the United Kingdom has launched a green industrial revolution; the US government’s vehicle fleet is expected to be replaced by EVs assembled in the US, an initiative led by President Joe Biden. Change is also afoot in the Netherlands where significant purchase subsidies brought in earlier this year are forecast to multiply sales in 2021, with December 2020 achieving the country’s largest number of EV sales to date. India is advancing its plan to achieve an 100% shift to EVs by 2030 alongside many other countries. The impact is now visible in increasing EV sales worldwide.

“We feel privileged to contribute to the global rally for electric mobility and we are excited to be able to expedite our SPG developments in order to meet increasing demand, and in doing so, we are well positioned to take advantage of the EV boom. I look forward to updating our shareholders as we evolve further, working to become a frontrunner in the global SPG market for batteries and EVs.”

Details

The Company has been working in partnership with a world recognised German manufacturer of micronisation and spheroidisation equipment, to develop commercial scale equipment to manufacture SPG. Using flake graphite produced at its primary Madagascar operations and further purified in India to >99.95% utilising the Company’s novel zero-hydrofluoric acid non-pyrometallurgical zero-waste eco-friendly purification technology for the development, a series of tests and optimisations were successfully completed resulting in the development of a three-step manufacturing process of battery-grade spherical graphite.

Significant achievements in the trials included:

- a yield of up to 68.4% and average of 45.8% spherical graphite from feedstock, which compares with generally reported about 35% yield using Chinese equipment, and;
- tapped density of up to 962g/l and average of 933g/l which is in the higher side of the required range.

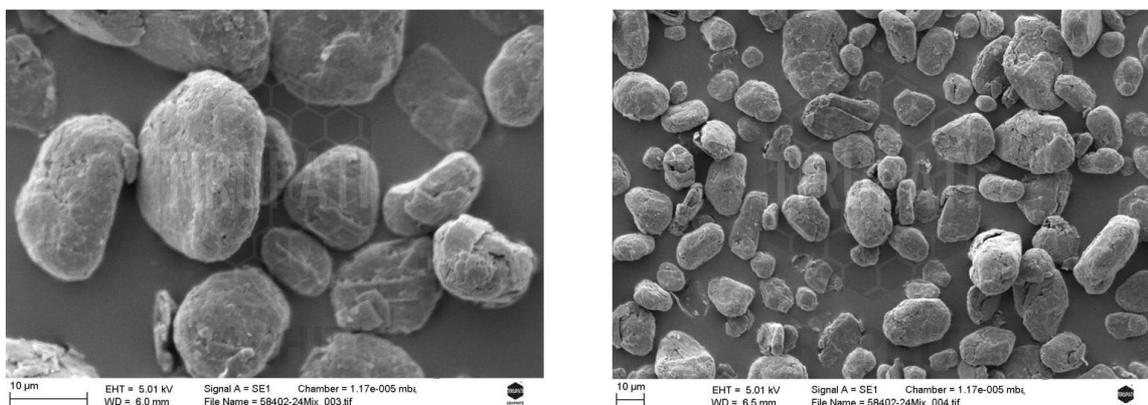


Figure 1: Images from characterisation of the SPG manufactured in trials.

The Company has commissioned the development of the first in a series of 3,000tpa commercial scale SPG production plants with a target to maximise yield percentage and tapped density at the higher end of the results achieved in trials. The development process will generate bulk samples, which will be provided to potential customers for critical qualification steps to become a supplier. Notably, the Company is already in discussions with prospective buyers including auto majors expediting their EV roll-out strategies. With automakers focussing on developing green supply chains for electric vehicles, Tirupati is well positioned to be a preferred supplier for SPG accredited to its sustainable and green in-house developed technologies in each area of the business.

Currently, 100% of SPG for lithium-ion batteries is manufactured in China using micronisation and spheroidisation equipment trains of Chinese origin, a process that has circa 14 steps. Increasing awareness from global governments to fund and promote supply chain development outside China and to reduce dependence on China for critical materials provides Tirupati with extensive opportunities to place itself as an ex-China source with eco-friendly technologies.

In line with the fast-evolving growth in the EV sector, the Company is expediting and enhancing its planned development of SPG production. Under Tirupati's current modular medium term development plan, the first commercial production for SPG is targeting July 2022, which the company intends to fast track to an earlier date of Q4 2021. Recent reports by IHS Markit demonstrate that by 2025 global sales of lithium battery EVs will top 12.2 million units, indicating annual growth of nearly 52% (compounded) and prediction that sales will rise by 70% in 2021. German car maker Volkswagen achieved the highest overall European EV market share in 2020 of 17.4%, up 609% year on year, followed by Mercedes-Benz with a share of 14.0%, up 500% year on year. Moreover, reports from S&P Global Platts analyse the UK government's promise in November 2020 of GBP12bn of investment into a range of decarbonisation initiatives, which will also bring forward the ban on new internal combustion engines by 10 years to 2030. More recently, Jaguar Land Rover announced that their Jaguar brand will be all-electric by 2025 and Ford announced its passenger vehicle range will be all electric by 2030.

Some reports can be found here:

<https://www.spglobal.com/en/>

<https://ihsmarkit.com/index.html>

<https://www.ev-volumes.com/>

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For further information, please visit <https://www.tirupatigraphite.co.uk/> or contact:

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Notes

Tirupati Graphite Plc is a revenue-generative, multi-asset, multi-jurisdictional, fully integrated producer and developer of high-grade natural flake graphite, speciality graphite and graphene, which captures the entire value chain. With a unique set of properties, graphite has diverse applications with multiple growth streams and graphene forms the new generation of 2D materials. In support of this, the Company places a special emphasis on “green” applications, including renewable energy generation, energy storage and composites, and is committed to ensuring its operations are sustainable as well.

The Company’s operations include primary mining and processing in Madagascar, where the Company operates two key projects, Sahamamy and Vatomina; 3,000 tpa of high-quality flake graphite concentrate with up to 96% purity is currently being produced and sold to customers globally, and this is planned to increase to 84,000 tpa by 2024 as per the Company’s modular medium-term development plan.

In India, through Tirupati Speciality Graphite Private Limited (‘TSG’), with whom the Company has a binding acquisition agreement subject to regulatory approvals, Tirupati processes and produces speciality graphite for use in hi-tech applications like lithium-ion batteries, fire retardants and composites. Its specialty graphite processing operations include the 1,200 tpa Patalganga Project, which was commissioned in July 2019 to manufacture and sell CARBOFLAMEX®, a trademarked fire-retardant expandable graphite product. At the next stage of development, Patalganga shall further be expanded to 4,800 tpa capacity with capabilities to also produce high purity and micronised graphite, so increasing market and product reach by 2021. TSG has developed unique green processing technologies for manufacturing these advanced materials.

After establishing itself in the specialty graphite markets through the Patalganga Project, an additional 24,000 tpa specialty graphite processing facility is to be established in two 12,000 tpa phases. The plant will produce expandable, high purity, micronised and spherical graphite. The west coast of India has been chosen as the location and a detailed feasibility study has been completed. TSG is also in the process of establishing the Tirupati Graphene and Mintech Research Centre, a state-of-the-art R&D centre focussed on manufacturing graphene, developing its applications, and further providing environmentally friendly technologies consultancy for mineral processing.