

# Graphite – The Sleeping Giant

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Keywords: Graphite, battery, anode, refinery, Graphinex

Graphite is recognised globally as a critical mineral, as a result of its unique position in the battery anode market and the risk to the global graphite supply chain. China dominates supply, producing 95% of the world's refined graphite for the lithium-ion battery market. On December 1st 2023, China implemented export permits on graphite production, effectively controlling the global supply chain and limiting graphite availability to the rest of the world.

Graphinex is a graphite Battery Anode Material (BAM) manufacturer, whose strategy is to disrupt China's dominance by becoming a fully-integrated global supplier in Queensland, from mine to market. We are focused on developing our world-class Esmeralda graphite deposit in North Queensland, and constructing and operating potentially Australia's first full-scale graphite refinery in Townsville, further enhancing Townsville's reputation as a Critical Minerals Hub.

Graphinex completed a Scoping Study in November 2023, with the aim to produce Active Anode Material (AAM) from the Esmeralda orebody. Purified, spheronized graphite (PSG) was produced at a purity of 99.96% graphite that met physical and chemical specifications for battery manufacturers.

The PSG was then sent to the University of Queensland to coat with High Purity Alumina (HPA) from Vecco Group and to conduct battery testing. Twenty lithium-ion coin cells were made with the Esmeralda graphite as the anode. All exceeded charge/discharge specification at the first attempt. After four months of cycling, the batteries have shown no degradation.

This presentation will give a brief overview of the role of graphite as a battery anode and a summary of the global graphite market. It will then focus on the steps that Graphinex have underway to develop the Esmeralda graphite deposit and also the Townsville Battery Anode Refinery. It will present the results of the Scoping Study and battery performance testwork at UQ.