



14 April 2023

## **ALTECH – GREAT PROGRESS AT GERMAN SILUMINA ANODES™ PILOT PLANT**

### Highlights

- Significant progress and according to plan
- Front end wet circuit complete
- Commissioning underway of wet circuit
- On site laboratory completed and being commissioned
- Long lead calciner still outstanding from South Africa
- Expect to commission calcining end of Q3

Altech Batteries Limited (ASX: ATC, FRA: A3Y) provides an update on its cutting-edge Silumina Anodes™ pilot plant project in Saxony, Germany, as well as the Definitive Feasibility Study for the planned Silumina Anodes™ 10,000tpa plant.

The Company has made significant progress in incorporating high-capacity high-purity alumina-coated silicon and graphite in lithium-ion batteries, and recently concluded a Preliminary Feasibility Study for the construction of a 10,000tpa Silumina Anodes™ plant in Saxony, Germany, that boasts an impressive NPV of US\$507M. As Altech races to bring its patented technology to market, it has commenced construction of a pilot plant adjacent to the proposed project site to facilitate the qualification process for its Silumina Anodes™ product. A YouTube video update of the pilot plant can be viewed at <https://youtu.be/IRWCDLx6UTI>

The construction of the Silumina Anodes™ pilot plant is progressing well and according to plan. The front end of the pilot plant, also known as the wet circuit, is making excellent progress, with power supply, laboratory, building modifications, and front-end wet circuit infrastructure completed. The pilot plant is located in an existing building in Dock3 at Schwarze Pumpe, Germany, and the necessary building modifications and electrical panel infrastructure construction were completed in the previous quarter.



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The on-site laboratory has been established and is currently going through commissioning. This development is a significant step towards enabling Altech to conduct necessary testing and analyses of the Silumina Anodes™ product. Additionally, the Company has established an on-site glove box, which will facilitate the production of lithium-ion battery coin half cells. These half cells will be used to test the performance of the Silumina Anodes™ produced from the pilot plant. This is a crucial component of the product qualification process and will provide important data on the product's performance characteristics.



While fabrication of the back-end of the pilot plant, including the coating equipment, dryer, and calciner (with longer lead times), is currently underway in South Africa and Europe, Altech is expediting the



production of some back-end items like silicon carbide linings. The Company anticipates that the final items will be installed and commissioned by end of Q3 this year.



According to Managing Director Iggy Tan, the advancements made on the Silumina Anodes™ pilot plant are highly promising, especially considering its crucial role in supplying customer samples. Iggy Tan emphasised that the primary goal of the pilot plant is to offer product for customer testing, which has generated significant interest in the market. He praised the diligent efforts of Altech's German team, that are working tirelessly to commission the pilot plant and commence production of commercial samples.

### Altech Chemicals Interactive Investor Hub

Engage with Altech directly by asking questions, watching video summaries and seeing what other shareholders have to say about this, as well as past announcements, at our Investor Hub <https://investorhub.altechchemicals.com>

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## About Altech Batteries Ltd (ASX:ATC) (FRA:A3Y)

### CERENERGY® Batteries Project

Altech Batteries Ltd is a speciality battery technology company that has a joint venture agreement with world leading German battery institute Fraunhofer IKTS ("Fraunhofer") to commercialise the revolutionary CERENERGY® Sodium Alumina Solid State (SAS) Battery. CERENERGY® batteries are the game-changing alternative to lithium-ion batteries. CERENERGY® batteries are fire and explosion-proof; have a life span of more than 15 years and operate in extreme cold and desert climates. The battery technology uses table salt and is lithium-free; cobalt-free; graphite-free; and copper-free, eliminating exposure to critical metal price rises and supply chain concerns.

The joint venture is commercialising its CERENERGY® battery, with plans to construct a 100MWh production facility on Altech's land in Saxony, Germany. The facility intends to produce CERENERGY® battery modules to provide grid storage solutions to the market.



### Silumina Anodes™ Battery Materials Project

Altech Batteries has licenced its proprietary high purity alumina coating technology to 75% owned subsidiary Altech Industries Germany GmbH (AIG), which has commenced a definitive feasibility study for the development of a 10,000tpa silicon/graphite alumina coating plant in the state of Saxony, Germany to supply its Silumina Anodes™ product to the burgeoning European electric vehicle market.

This Company recently announced its game changing technology of incorporating high-capacity silicon into lithium-ion batteries. Through in house R&D, the Company has cracked the "silicon code" and successfully achieved a 30% higher energy battery with improved cyclability or battery life. Higher density batteries result in smaller, lighter batteries and substantially less greenhouse gases, and is the future for the EV market. The Company's proprietary silicon graphite product is registered as Silumina Anodes™.

The Company is in the race to get its patented technology to market, and recently announced the results of a preliminary feasibility study (PFS) for the construction of a 10,000tpa Silumina Anode™ material plant at AIG's 14-hectare industrial site within the Schwarze Pumpe Industrial Park in Saxony, Germany. The European graphite and silicon feedstock supply partners for this plant will be SGL Carbon and Ferroglobe. The project has also received green accreditation from the independent Norwegian Centre of International Climate and Environmental Research (CICERO). To support the development, AIG has commenced construction of a pilot plant adjacent to the proposed project site to allow the qualification process for its Silumina Anodes™ product. AIG has executed NDAs with two German automakers as well as a European based battery company.



### HPA Production Project

Altech is also further aiming to become a supplier of 99.99% (4N) high purity alumina (Al<sub>2</sub>O<sub>3</sub>) through the construction and operation of a 4,500tpa high purity alumina (HPA) processing plant at Johor, Malaysia, and has finalised Stage 1 and Stage 2 construction of its HPA plant in Johor, Malaysia. Feedstock for the plant will be sourced from the Company's 100%-owned near surface kaolin deposit at Meckering, Western Australia and shipped to Malaysia. The HPA project is significantly de-risked with a bankable feasibility study completed, senior lender project finance from German government owned KfW IPEX-Bank approved, and a German EPC contractor appointed – with initial construction works at the site completed. In addition to the senior debt, conservative (bank case) cash flow modelling of the HPA plant shows a pre-tax net present value of USD 505.6million at a discount rate of 7.5%. The project generates annual average net free cash of ~USD76million at full production. Altech is in the final stages of project finance with a potential raising of US\$100m of secondary debt via the listed green bond market. In addition, US\$100m of project equity is being sought through potential project joint venture partners.