The Manager Companies - ASX Limited
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ASX Announcement
22 August 2023
(5 pages)

PROJECTS UPDATE
SUPPLYING DE-CARBONISATION

STAGE 1 – PPF

- **HPA circuit equipment commissioning**
- **Solar installation near completion**
- **Al-nitrate production to date at 175 tonnes at 5N (99.999%) purity**

PRODUCT MARKETING

- **LOI for up to 1,000tpa of HPA to supply South Korean semiconductor sector**
- **Li-B cathode manufacturer site visit to HPA First Project**
- **Al-oxide anode coatings pass Round 1 qualification with US battery developer**
- **Testwork increasing with 30+ orders received this month**
- **HPA orders received for testwork in solid state batteries**

ALPHA SAPPHIRE

- **Construction of first sapphire growth units on schedule for installation and commissioning in early 2024**
- **Site locations and renewable energy options assessment continues**
- **Funding discussions advanced**

FULL SCALE HPA FIRST PROJECT

- **Multi-product engineering advanced**
- **Project financing negotiations advanced**

The Board of Alpha HPA Limited ('Alpha' or 'the Company') is pleased to provide an update on project activities for its HPA First Project and Alpha Sapphire, each representing the commercialisation and production of critical high purity aluminium products driving de-carbonisation.

The Company's Stage 1, Precursor Production Facility (PPF) in Gladstone, QLD is in production for 5N purity aluminium nitrate (Al-nitrate) precursors with an expansion underway to produce Alpha's full product offering.

The Company is concurrently satisfying the remaining conditions precedent to the full-scale HPA First Project Final Investment Decision (FID), with a focus on product sales, offtakes and project financing.

STAGE 1 – PPF

HPA circuit expansion

Alpha is currently deploying the $15.5 million grant awarded under the Critical Minerals Development Program (CMDP) to install a small-scale commercial high-purity aluminas (HPA) circuit within Stage 1 and expand the capability of the Stage 1 PPF to include Alpha's full high purity aluminium product range.

Most major equipment orders have been delivered and installed, with remaining equipment in train.

Once fully deployed, the CMDP grant funding will facilitate:

- the expansion of Stage 1 PPF production capacity of aluminium nitrate and aluminium sulphate;
- the capability to produce up to 15tpa of additional capacity of HPA production, including nano HPA production to service end-users in the semi-conductor (CMP) sector;
- the capability to produce up to an additional 10tpa of high purity boehmite;
- the capacity to produce 15-25tpa of high purity alumina-trihydrate (ATH)
- the production of HPA tablets for synthetic sapphire glass growth, and
- installation of a large rooftop solar array, which is nearing completion.

Stage 1 PPF – showing rooftop solar installation

Stage 1 production

Production of high purity Al-nitrate has continued, with cumulative Al-nitrate production having now reached approximately 175 tonnes at the target 5N (99.999%) purity level. Production levels are being maintained at around 850kg per day, as the conversion of Al-nitrate into additional product lines scales up to meet larger scale test orders.

The Stage 1 Facility is also producing 4N purity alpha phase and gamma phase HPA to support the Brisbane facility in supplying increasing volumes of small scale sales and product test orders. This includes the ongoing production of custom-shaped sintered HPA tablets for Ebner-Fametec.

These production lines are now servicing approximately 650kg of HPA product orders across a range of potential customers.

The Stage 1 PPF is also supplying Al-nitrate to the Brisbane facility to service end-user test orders for high purity boehmites (Al-O-OH), high purity alumina trihydrate (ATH) and high purity nano-aluminas.

Production capacity will be materially increased once the HPA circuit is fully installed and commissioned.

PRODUCT MARKETING

Alpha's global marketing effort is focused on the lithium-ion battery (Li-B) sector, the LED lighting and related synthetic sapphire sector applications, as well as multiple applications within the semi-conductor sector.

Since 10 July 2023, Alpha has received a further 30+ test orders, mostly focused in the Li-B and semiconductor sector.

LOI for up to 1,000tpa of HPA to supply South Korean semiconductor sector

Alpha has received a non-binding LOI from a South Korean (SK) based manufacturer of specialty materials for the semiconductor sector. The LOI follows successful product testing and initial 2 x 50kg sales of a bespoke HPA powder product.

The LOI confirms the manufacturer's interest in:

- the purchase of 1 metric tonne per month of the bespoke HPA powder from January 2024, to be serviced from Stage 1 PPF; and
- the purchase of up to 1,000 metric tonnes per year of the bespoke HPA powder from March 2026, to be serviced from the full scale Stage 2 HPA First Project.

Prior to January 2024, Alpha will continue sales to the manufacturer of 40-50kg per month.

The pricing terms discussed in the LOI are confidential, however Alpha can confirm a price range above US$30/kg.

Li-B cathode manufacturer site visit to HPA First Project

Alpha has hosted another site visit to the Stage 1 PPF from a technical and purchasing team representing a global leading Li-B cathode and anode manufacturer. The visit follows provision of a first round of test samples across a range of Alphas' high purity product offerings.

Alpha is now servicing a second round of larger, higher volume product test orders with results expected in November.

Al-oxide anode coatings pass Round 1 qualification with US battery developer

Alpha has been notified that following positive test results from Al-oxide coated graphite anode materials (Alpha's 'UltraCoat' Process), that the coating process has successfully completed round 1 qualification tests.

Alpha is now completing round 2 testing at larger scale.

The coating process utilises Alpha's 5N Al-nitrate as the main aluminium precursor.

Orders received for testwork in HPA bearing solid state batteries

The Company has recently received testwork orders for application within high-purity alumina-bearing solid state electrolytes for next generation **all solid-state batteries** (ASSB).

Alpha has been monitoring technology developments in this sector, noting a number of ASSB electrolytes are utilising alumina, or alumina derived secondary materials in their formulations. Although early stage, this application is considered of considerable future interest, as alumina content for a number of ASSB electrolytes are above the levels utilised in existing Li-B chemistries.

ALPHA SAPPHIRE

Construction of first sapphire growth units remain on schedule

The joint engineering team of Alpha and Ebner-Fametec are co-ordinating the construction and installation layout for the first two sapphire growth units purchased as per Phase A of the Ebner-Fametec agreement.

The construction of the units remains on schedule, with first equipment deliveries due late 2023, for installation and commissioning in early 2024 with Alpha HPA supplied sintered pucks from the newly commissioned Stage 1 HPA production. Phase A of Alpha Sapphire is estimated to produce approx. 7mt of synthetic sapphire per year and enable large scale qualification samples and small scale sales.

Assessment of site locations and renewable energy options continues

Alpha Sapphire has advanced discussions with respect to securing both a competitive source of renewable energy linked with a suitable site for the Phase B & C roll-out of the Alpha Sapphire business units (100 sapphire growth units).

These discussions are also linked to potential financing options with respect to the Alpha Sapphire business unit.

STAGE 2 – FULL SCALE PROJECT

Multi-product engineering advanced

The Company continues to advance the refreshed Definitive Feasibility Study (DFS) for the full scale Stage 2 HPA First Project which will include new product lines. The new plant layout to accommodate additional products not previously considered in the 2020 DFS is also in final review. Particular focus on optimising layout to manage costs has been a key consideration. The new layout will also enable preparation of minor project permitting amendments where discussions with relevant government agencies are already well advanced. Engineering is also ongoing on the final design to enable the project to hit the ground running and manage schedule risk.

An additional process opportunity, with potential material CapEx and OpEx benefits, is also being reviewed in parallel with the current flow sheet that will enable consolidation of some unit operations.

Project financing negotiations advanced

In the context of the multi-product engineering and the Independent Technical Engineering (ITE) review, Project Financing negotiations have been advanced in the last weeks with Project Financiers, with a view to finalising a financing package for the construction of the full-scale Stage 2 HPA First Project in the near term.

About the HPA First Project

The Company's HPA First Project represents the commercialisation of the production of high purity aluminium materials using the Company's proprietary licenced solvent extraction and HPA refining technology. The disruptive, low-carbon process technology provides for the extraction and purification of aluminium from an industrial feedstock to produce 4N (>99.99% purity) and 5N (>99.999% purity) aluminium materials for sale into high technology markets including the semiconductor, lithium-ion battery and LED lighting sectors.

Alpha completed a Definitive Feasibility Study in March 2020 following a successful pilot plant campaign in 2019.

Alpha is now in production at its Stage 1, Precursor Production Facility. The Stage 1 facility is also now being expanded to produce the full range of Alpha's high-purity aluminium materials with $15.5M grant funding from the Australian Government.

The Company is now in the mature phases of market outreach and project financing with respect to the full scale Stage 2 HPA First Project, with the expectation of positioning Stage 2 to Final investment Decision.

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