

The Manager Companies - ASX Limited  
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ASX Announcement  
9 October 2024  
(6 pages)

## PROJECTS UPDATE

### HPA FIRST PROJECT STAGE 2

- Earthworks well progressed
- Further long lead critical path packages awarded
- Key construction hires completed
- Formal Ground Breaking ceremony
- \$14.85M MMI-C grant funds received

### PRODUCT MARKETING

- Large scale battery end-user qualification near completion
- First DLE test results confirm 2x standard lithium extraction rates
- Semiconductor sector testing confirms Alpha's purity advantage
- HPA tablets qualified with sapphire optics end-user
- High volume product test orders received
- 64 individual test orders received in September quarter

### HPA FIRST PROJECT STAGE 1

- HPA production rates exceed >1,200kg/week
- Aluminium Nitrate circuits re-starting for full Stage 1 capacity
- Stage 1 production continues to service orders for
  - Semiconductor sector
  - Direct Lithium Extraction
  - Sapphire glass production

### ALPHA SAPPHIRE

- Sapphire qualification and maiden sales
- Sapphire boules to be issued for processing for semi-conductor and LED end-users

Alpha's Managing Director, Rimas Kairaitis said, "*Alpha continues to make steady and positive progress on the commercialisation path. We are particularly pleased with the continued and expanding market engagement with Alpha's unique high purity product offering and the excellent work by our team in continuing to deliver test and sale predicts to end-users.*"





*HPA First Project site looking southwest, showing earthworks well advanced, Stage 1 PPF and Orica Yarwun to the right of picture.*

Alpha HPA Limited (**Alpha** or **the Company**) (ASX: A4N) is pleased to provide an update on project activities for both the HPA First Project and Alpha Sapphire.

## **HPA FIRST PROJECT STAGE 2**

### **Earthworks**

Stage 2 earthworks are well underway with good progress on site clearing, clean fill import and compaction. The Stage 2 site works construction village is in place and operational. The Alpha construction team in Gladstone is now fully established and overseeing works.

### **Long lead equipment packages**

Engineering and Procurement activities are progressing to finalise major equipment vendor data and secure delivery dates. The Stage 2 Project team is accelerating final process area design and continue to award long lead critical path packages, with the most recent including:

- Rotary dryers
- Calciners

### **Utilities**

Stage 2 raw water connection from Gladstone Area Water Board has been installed and is ready for connection.

Ergon Energy connection design works progressing with key equipment orders in place by the end of the year.

Jemena is also progressing an updated proposal for a new natural gas let down station to be located on the property and connected to the Queensland Gas Pipeline (QGP).

### **MMI-C Grant**

A further \$14.85M was received in September as a milestone payment from the \$45.0 million Commonwealth Government Modern Manufacturing Initiative (MMI) grant.

### **Stage 2 Ground Breaking Ceremony**

On 2 September 2024, Alpha was pleased to mark the commencement of the Stage 2 Project construction with a ground breaking ceremony held on the Project site.

The event was attended by a number of key Project stakeholders including community representatives, Orica, project contractors and Alpha staff and directors.



*Alphas senior executive team at the formal Stage 2 Ground Breaking ceremony.*

## PRODUCT MARKETING

### First DLE test results confirm 2x standard lithium extraction rates

Alpha's ability to manufacture novel, amorphous, nanocrystalline, high purity alumina tri-hydroxides (ATH) continues to be of particular interest to end-users for Direct Lithium Extraction (DLE) sorbents.

As per previous updates, Alpha has serviced, or is servicing, 13 separate DLE end-user test product orders. DLE counterparties range from technical service providers, global materials businesses to petroleum majors looking to extract lithium from oil-field brines.

Alpha has now received the first test results from a leading DLE sorbent manufacturer which have confirmed Alpha's material is easier to process into a final sorbent and has generated lithium extraction rates of approximate twice the level of the market incumbent sorbents. Although still in early stage, this is considered strongly encouraging and Alpha has immediately provided a larger volume sample for test work.

Results from test work materials provided to multiple other end-users are still pending.

### Semiconductor sector

Alpha has further advanced the marketing of its HPA and high purity alumina hydrate products as precursors for thermal interface materials in the rapidly growing semiconductor packaging sector. A key Japan based end-user has confirmed Alpha's materials have passed a key quality threshold with zero detectable uranium (U) or thorium (Th) impurities.

Accordingly, and at the end-user request, Alpha has now submitted quotations to this end-user for the next scale-up of end-user testing, for a total 1,200kg of samples.

### HPA tablet qualification

Alpha has passed qualification to supply HPA tablets to a synthetic sapphire glass manufacturer in an arrangement considered non-competitive to Alpha's own sapphire growth plans. Accordingly, and at the end-user request, Alpha has now submitted quotations for commercial supply.

### Li-Battery anode UltraCoat submitted for final battery qualification

Alpha has advanced the test work and collaboration with a number of li-ion battery anode producers and developers and is pleased to note that a global leader has completed internal anode coating test work and full battery life-cycle test work to confirm the material performance and safety benefits of the use of Alpha's high purity Al-nitrate in the coating process. Accordingly, the counterparty has submitted coated anode materials to their major Li-battery customers for final qualification, which is expected to complete in calendar 2024.

UltraCoat can be applied to chemically coat:

- Li-ion battery anode and cathode active materials
- Li-ion battery cell casings
- Li-ion electrode sheets

**The wider regulatory and EV manufacturer focus on Li-ion battery fire prevention is considered strongly favourable for the accelerated testing and adoption of this Alpha's UltraCoat technology. Alpha's commercial scale aluminium nitrate production is currently under expansion with Stage 2, which will support increased production of the UltraCoat technology.**

### Product orders

Alpha continues to receive and service a high volume of test orders, consolidating market signals for robust and growing market demand. In the September quarter, 64 separate product test and/or sales orders were received.

Orders have included a 500kg HPA sale order for LED phosphor manufacture to an EU based end-user, to be completed in early October 2024.

## HPA FIRST PROJECT - STAGE 1

Stage 1 operations remain focused on servicing customer qualification test orders and sales orders for:

- Alpha and gamma phase HPA
- Sintered HPA tablets
- Nano-HPA
- High purity alumina hydrates (boehmite (Al-O-OH) and 'ATH' (or Al(OH)<sub>3</sub>); and
- Aluminium nitrate (Al-nitrate)

The HPA and alumina hydrate circuits continue in stable operations, with HPA production levels continuing to exceed design capacity and reaching >1,200kg per week and alumina hydrate production reaching >100kg (wet cake) per day.



*A 2 tonne gamma HPA order ready for despatch to a USA based counterparty.*

### Aluminium Nitrate circuits re-starting

With the establishment of stable operations of the high purity alumina and high purity aluminium-hydroxide circuits, the aluminium solvent extraction (SX) circuit and high-purity Al-nitrate circuits have now been re-commenced to provide high purity precursor material for the plant and to supply ongoing Al-nitrate product demand.

## ALPHA SAPPHIRE

Alpha has maintained sapphire growth cycles of high-quality synthetic sapphire boules from the initial 2 (Phase A) sapphire growth units in Gladstone.

Following successful test work, Alpha Sapphire has now been qualified with a leading sapphire optics supplier who provide sapphire blanks as scratchproof lenses to many leading premium watch makers.

Pleasingly this has precipitated maiden sapphire sales, with first sapphire now being shipped for sale (*see image below*).

Additional sapphire boules are also being despatched for processing to synthetic sapphire wafers to service qualification enquiries for LED, semiconductor and sapphire optics end-users.



*5 sapphire boules packed for shipping to sapphire optics buyer.*

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#### **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, exclusively licensed 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 is in production at its HPA First Project Stage 1, Precursor Production Facility (PPF) across the Company's full range of high purity aluminium materials and has commenced construction of Stage 2 of the HPA First Project.

On 20 May 2024, Alpha released a final Definitive Feasibility Study and FID for Stage 2 of the HPA First Project, being the full commercial scale deployment of the process technology on the same site.

Alpha has commenced construction of Stage 2 of the HPA First Project, which will be the world's largest, single site facility for the manufacture of high purity aluminium materials.