

The Manager Companies - ASX Limited
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ASX Announcement
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(5 pages)

PROJECTS UPDATE

HPA FIRST PROJECT STAGE 2

- Project execution activities accelerate
- Integrated Owners Team (IOT) systems established
- Additional key IOT roles recruited
- The Design & Construct (D&C) contractor embedded into IOT
- Site establishment on track for early September quarter
- HazOp Study complete
- All long-lead equipment packages have been issued

PRODUCT MARKETING

- Multiple new sales orders received post Stage 2 FID
- Pre-commercial sales as qualification matures, including;
 - For semiconductor sector
 - 250kg nano HPA precursor sale order
 - 50kg nano HPA sales order
 - 40kg nano HPA sales order
 - For Direct Lithium Extraction (DLE) catalysts
 - 2 x 100kg high purity alumina hydroxide sales orders
 - 8 x 1kg high purity alumina hydroxide test orders
- Patent application submitted for UltraCoat battery safety process
- A further 300kg of sintered HPA tablets shipped to end users

HPA FIRST PROJECT STAGE 1

- Improved HPA production of HPA reaching >550kg/week
- Multiple HPA and Al-hydroxide sales orders being serviced

ALPHA SAPPHIRE

- Successful second round sapphire growth completed
- First samples sapphire samples shipped to end users

Alpha's Managing Director, Rimantas Kairaitis said, "Alpha is very pleased with the material acceleration in end-user engagement, qualification orders and product sales orders as we build momentum with our Stage 2 Project execution."



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

Final Investment Decision and Project Execution

As per ASX release dated 20 May 2024, Alpha has taken FID in respect of the Stage 2 of the HPA First Project (**Stage 2**). **Stage 2** is the full commercial scale deployment of the process technology to manufacture up to 10,430 tpa of ultra-high purity aluminas, alumina hydroxides and aluminium nitrate precursors.

Stage 2 is being executed using an Integrated Owners Team (IOT) execution model as opposed to an EPCM methodology. The IOT model provides a better structure for managing Alpha's sensitive process IP and drives a stronger cost-ownership culture. The IOT will comprise a combination of Prudentia Engineering, a Procurement and Project Controls contractor and Alpha management. In addition, a fully integrated Design and Construct (D&C) Structural, Mechanical and Piping (SMP) contractor is working within the IOT.

Post FID, final IOT systems have been established, and the following key progress made:

HazOp Study complete

A multi-week Hazard and Operability (HazOp) study has been completed by the IOT, to develop a comprehensive risk matrix and risk systems for Project construction and operation.

IOT recruitment

The Company has successfully recruited a number of additional key hires into the IOT, including construction superintendent, environmental advisor, construction site administration officer and quality & risk manager.

Each new hire will join the project team in Brisbane ahead of commencement of site works in Gladstone.

Earthworks and Site Establishment

Layout and civil design have advanced to allow for the earthworks package to be finalised and issued for tender. Site establishment and commencement of earthworks remain on schedule for commencement early in the September quarter 2024.

Long lead equipment

Most vendor engineering for key long lead item equipment had commenced prior to FID, however design packages for all long lead equipment has now been issued. This will allow for completion of final vendor design, costing, contract completion and placing of equipment orders.

The time critical electrical connection contract with Ergon Energy has been executed, with first two payments made.

PRODUCT MARKETING

The Company has recorded a material increase in product test order volumes and sales orders post FID of **Stage 2**.

In particular, the receipts of multiple pre-commercial product sales reflect the encouraging maturation of technical product qualification with multiple counterparties.

In each case, pre-production sales are linked to material indicative sales volume to be serviced by the Stage2 facility.

Sales orders received, completed or under manufacture in the last month include:

For semiconductor end-use applications:

- 250kg nano- high purity alumina (**HPA**) precursor sales order
- 40kg of nano HPA sales order
- 50kg of nano HPA sales order

For Direct Lithium extraction (DLE) catalysts:

- 2 x 100kg sales orders of high purity alumina hydroxides (**ATH**)

For other applications:

- 20kg of milled HPA
- 5kg of milled HPA

Test order volumes also continue to build, including:

- 8 individual test orders of high purity ATH for DLE
- 300kg of sintered HPA tablets for synthetic sapphire glass growth

Sales and product order counterparties include 3M, Entegris, Tokuyama and Saint Gobain. Weighted average unit pricing for these sales orders is US\$32/kg.

Alpha is utilising capacity in both the Stage 1, Precursor Production Facility (PPF) in Gladstone, QLD and the Company's Brisbane facility to continue to deliver product test orders to end-users.



High purity alumina hydroxide shipment and All-nitrate shipments leaving site

UltraCoat battery safety process

Alpha has successfully filed a provisional patent for the UltraCoat process, which utilises Alpha's proprietary ultra-high purity Al-Nitrate precursor to apply controlled thickness high-purity aluminium-oxide and hydroxide coatings to a range of surfaces within the Li-B cell environment.

Concurrently, the Company has also expanded the counterparties now working with the Company on the UltraCoat process.

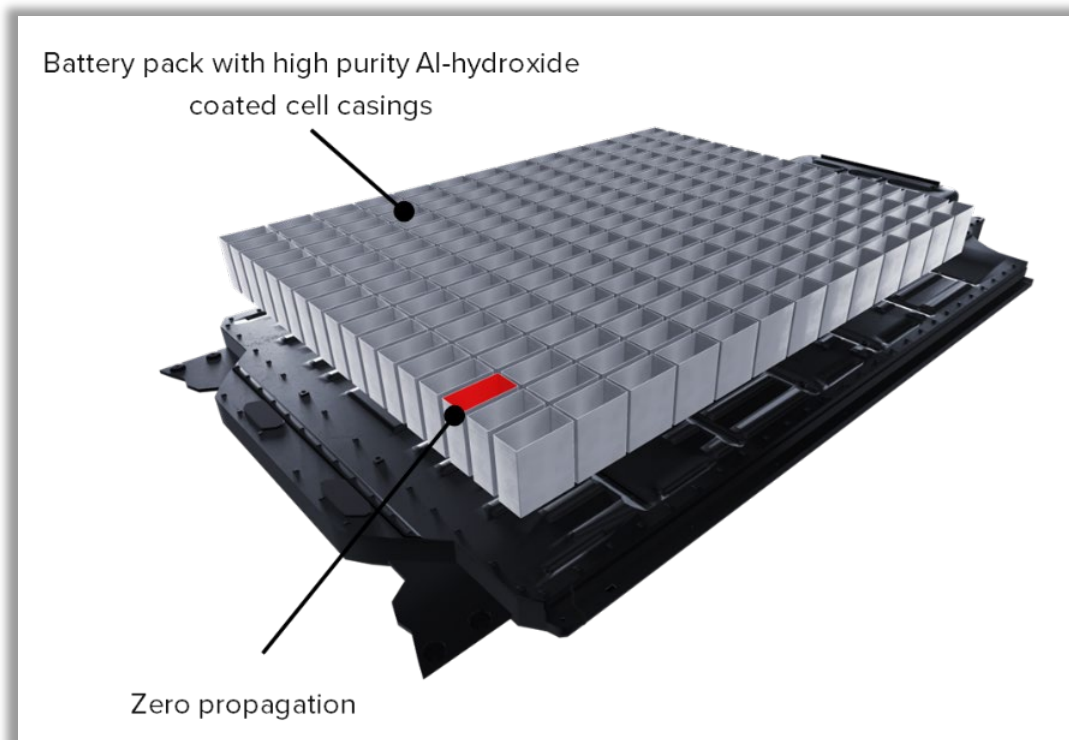
UltraCoat can be applied to chemically coat:

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

In most cases the coating provides material safety benefits in the protection of thermal runaway preventing Li-ion battery fires (**thermal runaway**) and/or preventing propagation of Li-ion battery fires through a cell pack (**zero propagation**).



Application of ultra pure aluminium-hydroxides on li-ion battery cell casings using Alpha's UltraCoat process



Schematic showing UltraCoat application to Li-ion cell packs and control of fire propagation

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 coating technology, enabled by the establishment of commercial scale aluminium nitrate production by Alpha.

HPA FIRST PROJECT - STAGE 1

Stage 1 operations have focussed 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)₃))
- Aluminium nitrate

The HPA and alumina hydrate circuits have continued to stabilise, with HPA production levels reaching >550kg per week and alumina hydrate production reaching >100kg (wet cake) per day. Ongoing process refinements and de-bottlenecking continue to optimise product throughput

Production of all materials continues to maintain exceptional purity levels in excess of 99.995%.

ALPHA SAPPHIRE

Successful second round sapphire growth completed

The initial 2 (Phase A) sapphire growth units have successfully completed their second growth cycle (see image below), with first sapphire boules dispatched to end-users for qualification testing.



5x 30kg boules of good body sapphire (RHS) and first sapphire boule packaged and sent to customers for qualification testing (LHS), together with a 100kg HPA tablet sale

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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 now in production at its HPA First Project Stage 1, Precursor Production Facility (PPF) across the Company's full range of high purity aluminium materials.

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.