

The Manager Companies - ASX Limited  
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ASX Announcement  
1 May 2024  
(6 pages)

## PROJECTS UPDATE

### HPA FIRST PROJECT STAGE 1

- HPA tablet production ramping up
- First high purity alumina hydroxide samples shipped
- Jet mill commissioned

### ALPHA SAPPHIRE

- Initial 2 sapphire growth units (Phase A) fully installed
- First warm-up cycles successfully completed
- First sapphire growth run commenced
- Appointment of Chief Technology Officer – Alpha Sapphire

### PRODUCT MARKETING

- Letters of Intent received for up to a further 1,000 tonnes HPA per annum
- Al-Nitrate based coating (UltraCoat) expands to include:
  - Li-ion battery cell casings
  - Li-ion electrode sheets
- 50kg of test orders for new semiconductor sector supplier
- 100kg sales order of HPA tablets for specialist sapphire producer
- EcoVadis Sustainability Rating upgraded to 94<sup>th</sup> percentile

### HPA FIRST PROJECT STAGE 2

- Appointment of GM Manufacturing and GM Manufacturing Support
- Second payment received under the MMI-C Grant
- Stage 2 execution readiness accelerates

Alpha's Managing Director, Rimas Kairaitis said, "Alpha continues to build strong production and marketing momentum by leveraging our expanded capacity in the Stage 1 PPF. We are highly encouraged by the stronger end-user engagement and the additional Letters of Intent, which further consolidate the building demand we are observing in our target technology sectors. In parallel, the Company is expanding our team and capabilities as we build our readiness for Stage 2 execution."

# PROJECTS UPDATE

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.

The Company's Stage 1, Precursor Production Facility (PPF) in Gladstone, QLD has established small scale commercial production for its 5N (>99.999% purity) aluminium nitrate (Al-nitrate) precursors and is now in production of high purity aluminas (HPA) and in final commissioning of additional process equipment to provide expanded capacity for the production of the full range of Alpha's high purity aluminium products.

In addition, Alpha is close to finalising the Definitive Feasibility Study (DFS) and financing arrangements for Stage 2 of the HPA First Project, representing the full commercial scale implementation of Alpha's proprietary aluminium purification process technology.

Further details on these activities are outlined below.

## HPA FIRST PROJECT - STAGE 1

### HPA circuit

The new HPA circuit within Stage 1 has expanded the capability of the Stage 1 PPF to include Alpha's full high purity aluminium product range, which now includes:

- High purity aluminas, including nano HPA
- High purity alumina hydrates (boehmite (Al-O-OH) and alumina tri-hydrate ('ATH' or Al(OH)<sub>3</sub>).
- High purity aluminium sulphate

As reported in the previous update, the HPA circuit is now in stable operation producing up to 500kg per week of gamma and alpha phase aluminas. The jet mill has now been successfully commissioned, allowing the Stage PPF to customise HPA orders to match most customer requirements. More stable operations in the sintering circuit has allowed production of sintered HPA tablets to reach ~75kg per week.

Construction of the aluminium-sulphate circuit is now mechanically complete (*see image below*), with commissioning of this circuit deferred until standing alumina and alumina-hydrate orders are completed and shipped.

The high purity alumina hydroxide circuit is undergoing commissioning, and is now producing both high purity boehmite (Al-O-OH) and high-purity ATH.



*Installed aluminium sulphate circuit, showing flash dryer (LHS) and centrifuge (centre)*

## ALPHA SAPPHIRE

### Initial 2 sapphire growth units (Phase A) fully installed

The initial 2 (Phase A) sapphire growth units have now been fully installed, with the on-site assistance of Ebner-Fametec technical personnel.



*First 2 (Phase A) sapphire growth units – fully installed*

### First warm-up cycles completed and first sapphire crystal run commenced

Following full installation, Alpha and Ebner-Fametec personnel have successfully completed the first warm-up cycles and commenced the first sapphire glass growth run, which is expected to complete in the first week of May.

### Appointment of Chief Technology Officer

Alpha Sapphire is pleased to note the appointment of Dr Lauris Dimitrocenko as Chief Technology Officer (CTO) for Alpha Sapphire. Lauris is a PhD qualified physicist and comes to the business with extensive experience in synthetic sapphire crystal growing techniques.

Lauris is also leading research at the globally recognised Institute of Solid State Physics (ISSP) at the University of Latvia on Metal Organic Chemical Vapour Deposition (MOCVD) with Aluminium Nitride, Gallium Nitride and other compounds related to epitaxial growth for LED semiconductors.

## PRODUCT MARKETING

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.

End-user engagement continues to be sourced from the following sectors:

- **Lithium-ion battery (LiB) sector:** With a focus on cathode coating, dopants and anode coatings
- **LED Lighting sector:** With a focus on HPA for synthetic sapphire LED substrates and LED phosphors
- **Semi-conductor sector:** With a focus on materials for Chemical Mechanical Polishing (CMP) and thermal interface materials for semi-conductor packaging

### Letters of Intent received for up to a further 1,000 tonnes per annum

Alpha is pleased to advise that it has received Letters of Intent (LOIs) from prospective end-users for up to a further 1,000 tonnes of high purity alumina-based products from 3 separate counterparties. This includes an LOI for up to 300 tonnes per annum of HPA from Alpha Sapphire. Alpha has now received LOI's from prospective end-users for up to 2,000 tonnes of high purity aluminium based products.

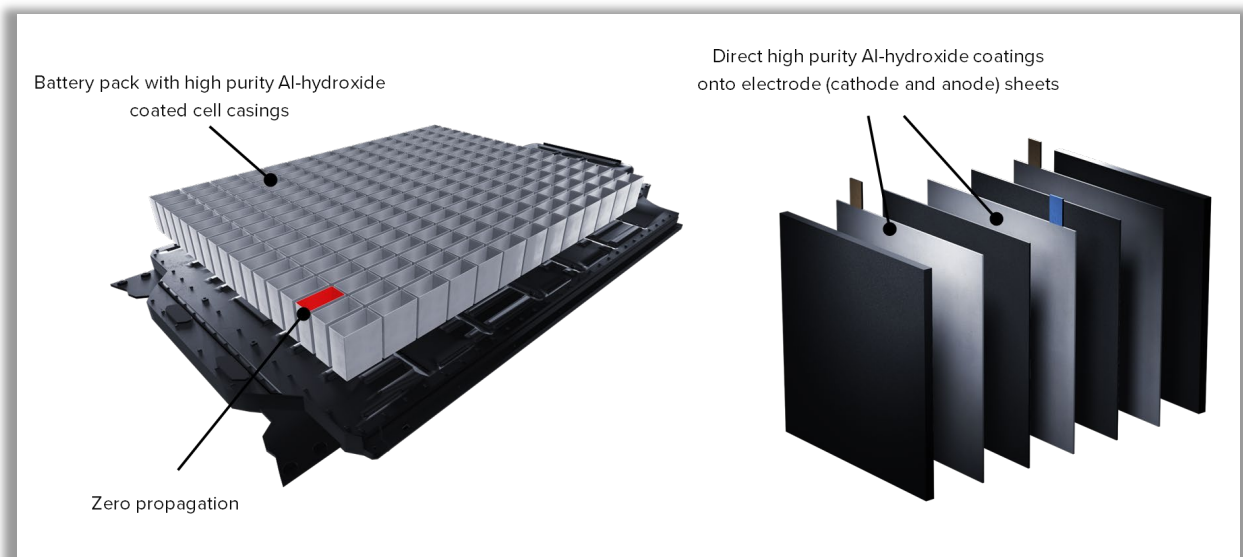
### Al-Nitrate based coating (UltraCoat) expands

Alpha has expanded its engagement with research partners and end-users in respect of further applications of the use of 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.

In addition to the use of UltraCoat to chemically coat Li-B anode and cathode active materials, testwork has now expanded to include:

- Li-ion battery cell casings
- Li-ion electrode sheets

Testing of each new application is premised on preventing Li-ion battery fires (**thermal runaway**) and/or preventing propagation of Li-ion battery fires through a cell pack (**zero propagation**).



*Schematic showing UltraCoat application to Li-ion cell packs (LHS) and Li-ion electrode sheets (RHS)*

**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.**

### 50kg of test orders from new semiconductor sector supplier

Alpha is pleased to note substantial new interest from a manufacturer of polishing slurries (CMP) to the power-semiconductor sector.

Alpha has received an initial sample order for six different high purity products across our product capability totalling 50kgs.

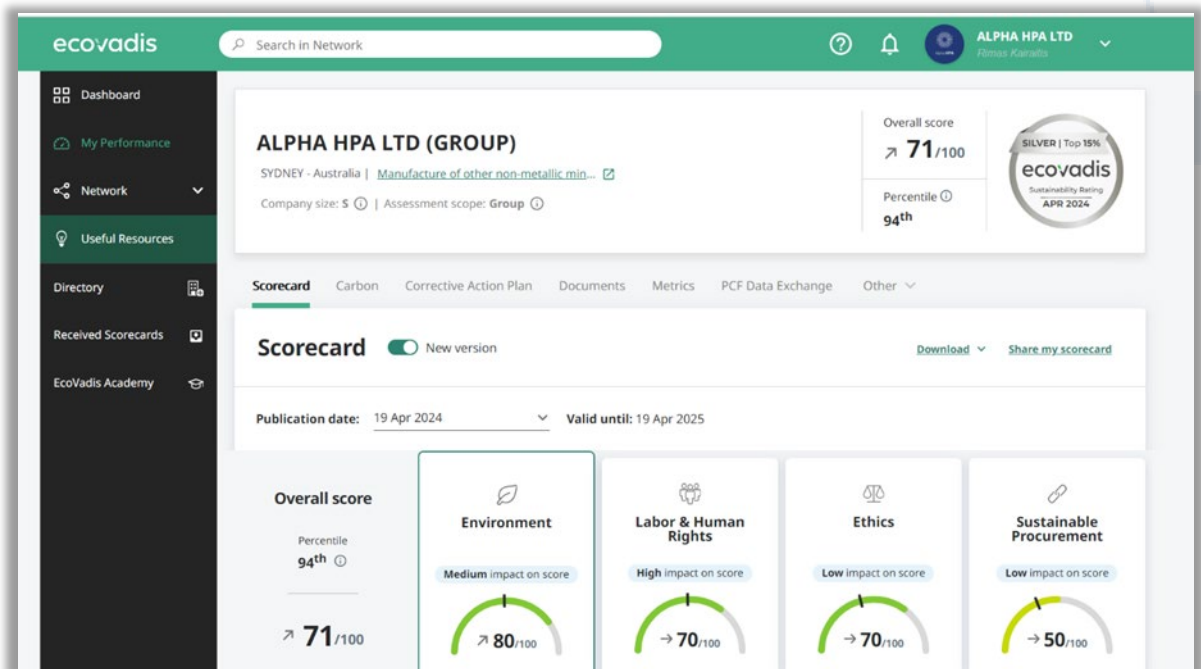
### 100kg sales order of HPA tablets for specialist sapphire producer

Following completion of existing HPA tablet production for Ebner-Fametec and Alpha Sapphire, the Stage 1 facility will complete a new, 100kg sales order for a specialist manufacturer of synthetic sapphire, priced at US\$25/kg.

### EcoVadis Sustainability Rating upgraded to 94th percentile

Alpha is pleased to note that the most recent review of Alpha's sustainability rating has lifted the Company's rating to 71/100, representing the 94<sup>th</sup> percentile of suppliers rated (see below).

Alpha has updated the upgrade to its prospective customer database accordingly.



## HPA FIRST PROJECT STAGE 2 – FULL SCALE

### Appointment of GM Manufacturing and GM Manufacturing Support

In preparation for the imminent completion of the Stage 2 DFS, Alpha is pleased to announce the appointment of Matthew Callanan, currently Site Manager for Alpha as GM Manufacturing in Gladstone. Matt has been managing and running the Stage 1 PPF for the past 12 months and previously was Director of Operations for Fertiglobe, a large Ammonia Nitrate production facility in Egypt. Matt will have overall accountability for site operations and activities with immediate focus on operations readiness for the Stage 2 Project.

The Company also welcomes Lisa Roobottom to the role of GM Manufacturing Support. Lisa was previously COO of Graphene Manufacturing Group and prior to that was Safety and HR Manager for Alpha. Her role is to support manufacturing operations in key areas of focus for the longer term, specifically QA/QC systems and safety case development for the HPA First Stage 2 Project.

## Receipt of second payment under the MMI-C grant

Alpha is pleased to note receipt of the second payment under the Modern Manufacturing Initiative – Collaboration (MMI-C) Grant.

On 10 April, Alpha received \$4.95M under the terms of the grant, with 10% of MMI-C funds flowing to Orica as a Grant participant.

## Stage 2 Execution readiness

In preparation for the imminent completion of the Stage 2 DFS and Project financing, Alpha has advanced a number of key elements of the Stage 2 project implementation, including:

- Recruitment for key staff within the project management Integrated Owners Team organisational structure.
- Engineering design works, with a focus on key areas in order to progress critical path items including:
  - Completion of early earthworks design for the site
  - Baseline soil and water sampling in preparation for construction
  - Haulage road through State Development land for imported fill identified to minimise haulage costs
  - Structural, Mechanical and Piping (SMP) contractor early engineering design reviews underway
  - Various engineering engagement with utilities to confirm site survey for utility owned equipment on site (Jemena and Ergon)

Other workstreams underway include:

- Amendments to existing approvals continue with submission to relevant authorities planned over the coming months
- Federal Safety Commission accreditation passed desk top audit. Final audit of practical works is to be conducted when appropriate construction work commences on site in coming months

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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), located in Gladstone, QLD. The Stage 1 PPF has now been 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 product marketing and is due to shortly deliver the final Definitive Feasibility Study and complete project financing with respect to the full scale Stage 2 HPA First Project, to be located on the same project site.