

Alpha **HPA**

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ASX: **A4N**  
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## **HPA FIRST PROJECT UPDATE**

### **SUPPLYING DE-CARBONISATION**

#### **STAGE 1 – PPF**

- **Main facility building cladding almost complete**
- **HVAC system installed**
- **Lighting and electrical installation underway**
- **HV transformer installed**

#### **PRODUCT MARKETING**

- **Initial EU and US marketing trips accelerate product marketing**
  - **13 new product test orders**
  - **High volume enquiries from catalyst sector**
  - **Further high value Al-Nitrate sales (@US\$350/kg)**
- **End user test results of Alpha's products showing out-performance in:**
  - **Sapphire glass growth**
  - **Synthesis of LED nano-phosphors for micro-LED's**
  - **High transparency coatings of lighting tubes**
  - **Li-B separator coatings**
- **Alpha's market outreach advantages re-affirmed, being:**
  - **Best in-class purity**
  - **Low-CO<sub>2</sub> footprint**
  - **Near term production**
  - **Tier 1 jurisdiction**

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

Alpha is fully funded to commercial production at its Stage 1, Precursor Production Facility (PPF) which is under construction in Gladstone, QLD and scheduled to commence commercial production of the Company's high purity Aluminium Precursors from September quarter 2022.

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

## STAGE 1 - PPF

The Company continues to make good progress on the construction of Stage 1 PPF component of the HPA First Project as detailed below:



*Cladding of the main PPF Building nearing completion*



*PPF Building Interior - Lighting installed and energised, with process equipment deliveries continuing*



*Installation of PPF reagent tanks*

The Stage 1 PPF remains on track for commissioning in the September quarter.

### **Main facility building cladding almost complete**

Cladding and roofing of the main PPF building is nearing completion (*refer images above*).

### **HVAC system installed**

The electrical, instrumentation and controls (EI & C) installation is now well underway with the installation of the high-volume air-conditioning (HVAC) units complete.

### **Lighting and electrical installation underway**

Main PPF building lighting has been installed and energised and main high Voltage (HV) Ergon transformer installed.

### **Process Equipment Deliveries**

Deliveries of process plant equipment continue (*refer image above*) with first pipe rack modules now in place.

## **PRODUCT MARKETING**

The Company has recently initiated the first in a series of marketing trips to both existing and prospective customers in the EU and US. Follow-on trips are expected soon, together with visits to target key customers in Japan and South Korea. The trips provided for direct interface with purchasing and R&D teams and the collection of product testwork. In nearly all cases the visits have accelerated the level of end-user engagement, with summary outcomes described below.

### **13 new product test orders**

Direct marketing engagement has initiated a further 13 orders for product testing, with four of these orders already fulfilled and the remainder under manufacture within the Company's Brisbane facility. These orders include:

- High volume (+300kg) orders of sintered HPA pellets for sapphire glass growth
- A range of high purity gamma aluminas and high purity boehmite samples for the catalysts sector
- Al-Nitrates and Al-Sulphate precursors for battery material coating and battery materials synthesis
- High purity alumina for micro-LED phosphor synthesis

### **High volume enquiries from catalyst sector**

Linked to the product test orders described above, Alpha has now received high volume enquiries of for its high purity gamma aluminas and high surface area boehmites for applications as chemical catalysts. Indicative demand of these materials from two key EU counterparties is in excess of 4,000tpa.

### **Further high value Al-Nitrate sales (@US\$350/kg)**

Alpha has completed follow-on sales of a further 9kg of Al-Nitrate @ US\$350/kg to a research chemicals catalogue business.

### **Alpha's products delivering outperformance in testwork**

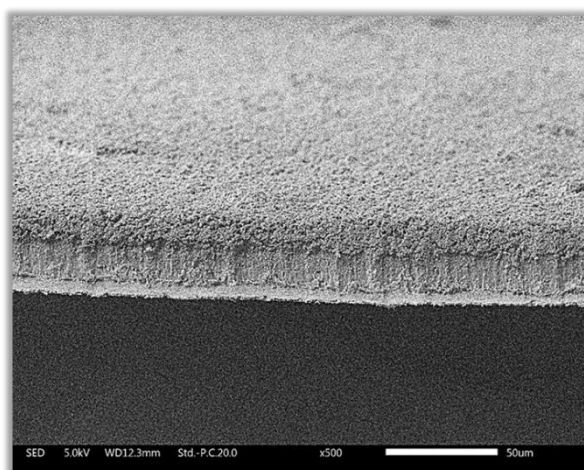
Alpha has received further positive feedback from various end-user product testwork, including:

- *Successful synthesis of nano-phosphors for micro-LED's using Alpha's high purity Al-nitrates.* The development of cheap, nano scale LED phosphors is a technology pre-requisite for the wide market adoption of micro-LED's. Testing by a leading EU based lighting technology group has shown nano-phosphors synthesised using Alpha's Al-Nitrate materials are outperforming phosphors made with comparison materials.
- *High transparency coatings on tube lights using Alpha's high purity aluminas.* Testwork by a leading EU based lighting OEM has shown Alpha's materials delivering superior -performance in comparison to incumbent raw materials.

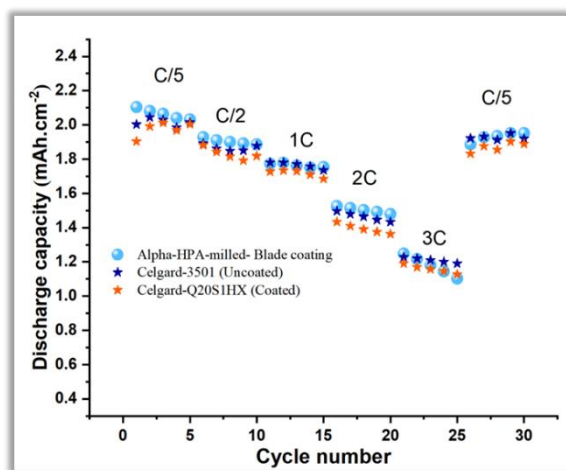
In each case, completion of next stage testwork has good potential for high value future demand.

As reported in previous updates, sapphire glass end-users have confirmed the quality of glass grown from Alpha's HPA feedstock meets their highest quality standards. Beyond the standing product orders, Alpha remains in discussions with sapphire glass growers to accelerate its ability to supply sintered HPA pellets to this market following significant supply disruption in Russia.

Alpha is also strongly encouraged by early stage testwork from the Australian based Future Battery Industries Cooperative Research Centre (FBICRC), showing electrochemical performance of lithium-ion battery separators coated with Alpha's HPA's are matching or slightly outperforming recognised industry standards (*see image below*)



Alpha's HPA coated separator (courtesy FBICRC)



Alpha's HPA coated separator – improved cycling performance (courtesy FBICRC) against industry benchmark (Celgard)

## Marketing Thematics

Recent marketing activities have firmly re-affirmed Alpha's key marketing advantages:

- **Best in-class purity:** Three of Alpha's products (Boehmite, Al-Nitrate and Al-Sulfate) are considered best in class purity with our HPA equivalent to highest purity materials available. In nearly all cases where test work has been completed, Alpha's higher purity materials are delivering superior performance in testwork results.
- **Low-CO<sub>2</sub> footprint:** Alpha's CO<sub>2</sub> modelling has shown a +60% reduction on CO<sub>2</sub> emissions per unit of HPA when measured against the incumbent HPA production process (the alkoxide process). Most end-user counterparties with which Alpha is interfacing have stated commitments to lower-carbon or zero-carbon supply chains by 2030.
- **Near term production:** Having the Stage 1 PPF in construction phase and the availability of Al-precursors in calendar 2022 followed by commercial volumes in 2023 is proving a key catalyst for end-users to accelerate product testing and commercial engagement with Alpha.
- **Tier 1 jurisdiction:** The increasing trends of geographic supply chain diversification continues to assist Alpha in presenting its product offering
- **Australian Government Support:** Recent public announcements of a A\$45M federal Government grant under the Modern Manufacturing Initiative (MMI), followed by the approval for up to A\$15.5M in grant monies from the Critical Minerals Accelerator Initiative (CMAI), have provided tremendous assistance in demonstrating strong support from the Australian Government for the HPA First Project.

Managing Director Rimas Kairaitis commented: "Alpha is delighted to now be able to freely travel to key markets and interface in person with prospective customers which has allowed us to accelerate our customer engagements and start to build competitive tension for Alpha's high purity aluminium materials"

### About the HPA First Project

The Company's HPA First Project represents the commercialisation of the production of ~10,000tpa equivalent of high purity alumina (HPA) and related high purity precursor products 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) alumina and 5N (>99.999% purity) for sale into the lithium-ion battery and LED lighting industry.

Alpha completed a Definitive Feasibility Study in March 2020 following a successful pilot plant campaign in 2019. Alpha has since upscaled its Brisbane facility to demonstration scale and has now recorded over 7,000 operating hours and delivered an expanded range of over 90 high purity product orders to end-users globally.

Alpha is fully funded to the commercial production at its Stage 1, Precursor Production Facility which is scheduled to commence commercial production for the Company's high purity Aluminium Precursors from September quarter 2022.

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

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