

Alpha HPA

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## HPA FIRST PROJECT UPDATE SUPPLYING DE-CARBONISATION

### STAGE 1 – PPF

- Al-nitrate production at ~16 tonnes at target 5N (99.999%) purity
- Stage 1 commissioning complete, now in ramp-up phase
- Orders placed for key long-lead equipment for Stage 1 HPA circuit

### PRODUCT MARKETING

- Follow-on order for large EU based cathode manufacturer
- Multiple new orders from EU based Li-battery manufacturer
- Follow-on high purity aluminium trihydrate orders
- First nano-HPA sale order from Lumileds
- 25kg Al-nitrate order for EU catalysts manufacturer
- Market research confirms steep rise for Al-sulphate demand to 2030

### STAGE 2 – FULL SCALE PROJECT

- Further advancement of engineering design
- Multiple stakeholder site visits

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.

The Company's Stage 1, Precursor Production Facility (PPF) in Gladstone, QLD has now been commissioned and is currently in ramp-up phase to full production capacity.

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

## STAGE 1 – PPF

### Commissioning complete - enters ramp-up phase

Production of aluminium nitrate (Al-nitrate) during commissioning phase has now reached approximately 16 tonnes, with assays confirming production at the **target 5N (99.999%) purity level**.

Commissioning is now complete and Alpha has shifted to ramp-up and throughput optimisation with a steady increase in process plant throughput from the current ~70% process rate to a target 100% process rate.

Al-nitrate production will be paused for one week over the Christmas period to allow for the tie-in of downstream equipment and the conversion of Al-nitrates to high purity alumina (HPA). This will facilitate larger volumes of HPA production to service multiple sample orders from Li-ion battery and sapphire glass end-users.



*5N purity aluminium nitrate inventory*



*Completed Stage 1 PPF*

### **Orders placed for key long-lead equipment for Stage 1 HPA circuit**

The first \$6.82 million tranche of the \$15.5 million grant awarded under the Critical Minerals Development Program (CMDP) has been received and funds are now being applied to placing orders for key long lead equipment, including:

- Rotary dryer
- Boehmite spray dryer
- Boehmite filter press
- Al-sulphate Centrifuge
- HPA tunnel kiln
- HPA tablet press
- Sinter oven for HPA tablets (for sapphire glass production)

Once fully deployed, the CMDP grant funding will have facilitated:

- The expansion of Stage 1 PPF production capacity of aluminium nitrate and aluminium sulphate;
- The capability to produce up to 10tpa of additional capacity of HPA production;
- The capability to produce up to 10tpa of additional capacity of High Purity Boehmite production;
- Production of HPA tablets for sapphire glass growth; and
- installation of a large rooftop solar array and battery storage capacity.

## PRODUCT MARKETING

### Follow-on order for large EU based cathode manufacturer

Following successful low volume (1kg) sample testwork and a related project site visit, Alpha now has received a larger volume (60kg) follow-on order of a specific HPA product for the next stage of qualification with an EU based cathode manufacturer. This order is expected to be completed and shipped by the end of January 2023.

### Multiple new orders from EU based Li-battery manufacturer

Following a number of meetings and review of Alpha's products and low-carbon process, a large EU based Li-ion battery manufacturer has now ordered four test samples across most of Alpha's product range. These orders will be shipped over December 2022 and early January 2023.

The ability to satisfy demand for multiple high purity aluminium products from a single production source is considered a key advantage of Alpha's process and the PPF facility.

### First nano-HPA sale order for Lumileds

After multiple rounds of sample product testing with leading global LED manufacturer Lumileds, Alpha has received its first minor sale order of nano HPA (5kg). A successful production run of this order by Lumileds is expected to lead to substantially larger production order in 2023.

### Follow-on high purity aluminium trihydrate orders

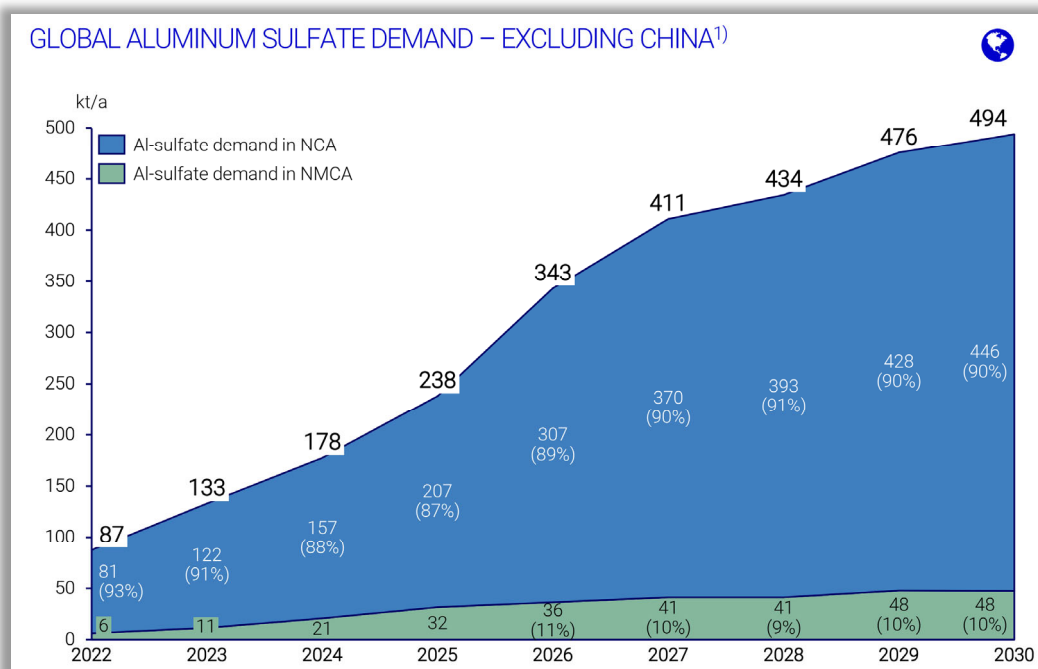
In November Alpha delivered its first sample orders for a newly developed product, 4N+ purity aluminium trihydroxide (ATH) for a potential high volume application. The counterparty has responded rapidly with an additional order. Another ATH order has been received from an EU battery maker. Each of these samples will be despatched this week.

### 25kg Al-nitrate order for EU catalysts manufacturer

Alpha supplied quotes for the supply of Al-nitrate to an EU catalysts manufacturer in October 2022. Alpha has now received and serviced a sample test order for 25kg for a qualification production run to complete in January 2023.

### Market research confirms steep rise in Al-sulphate demand to 2030

Research by the highly regarded P3 Group, commissioned by Alpha, has forecast dramatic escalation in Al-sulphate demand in Li-ion cathode applications. P3's research indicates ex-China demand growth for Al-sulphate from 87kt in 2022 to 494kt pa by 2030. This is considered highly favourable to Alpha's high-purity Al-sulphate product and market entry timing, and correlates with the increased interest observed by Alpha in this product



## STAGE 2 – FULL SCALE

### Further advancement of engineering design

Alpha continues to advance engineering studies to incorporate multiple high purity aluminium products into Stage 2 of the HPA First Project. As per ASX announcement 24 October 2022, the Company has engaged an engineering and Structural, Mechanical & Piping (SMP) firm that specialises in off-site plant pre-assembly with a view to delivering material capital expenditure reductions in a final delivered plant.

### Multiple stakeholder site visits

Alpha has hosted multiple site visits to the HPA Project Site with respect to participation in the Stage 2 Project finance and construction.

Participants included potential strategic investors, existing investors as well as engineering firms engaged to progress the Stage 2 design.

Commenting on recent progress, Managing Director Rimas Kairaitis said:

*“To reach target product specification so early in the Stage 1 commissioning is a huge credit to the team and a very positive signal for the next scale up into Stage 2. It is also tremendously exciting to be in a position to start ordering key HPA production equipment as funded by the Federal Governments Critical Minerals grant program. To be able to offer customers our full product range from Stage 1 by mid next year will be an enormous achievement and a huge competitive advantage for Alpha.”*

### About the HPA First Project

The Company's HPA First Project represents the commercialisation of the production 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 8,000 operating hours and delivered an expanded range of over 100 high purity product orders to end-users globally.

Alpha is fully funded to the commercial production at its Stage 1, Precursor Production Facility which has now completed a successful commissioning and entered production ramp-up phase

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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