

Alpha HPA

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## HPA FIRST PROJECT UPDATE SUPPLYING DE-CARBONISATION

### STAGE 1 – PPF

- Al-nitrate production at ~42 tonnes at target 5N (99.999%) purity
- Stage 1 now operating at ~85% of nameplate capacity
- HPA circuit design and procurement progressing well

### PRODUCT MARKETING

- Semiconductor testwork confirms outperformance using Alpha's HPA
- Letter of Intent received from Litec-LLL for HPA supply
- Increased volume of test orders from the semiconductor sector
- Further high purity aluminium trihydrate (ATH) test orders
- Multiple end-users now onboarding Alpha as a supplier
- Alpha hosting further customer 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.

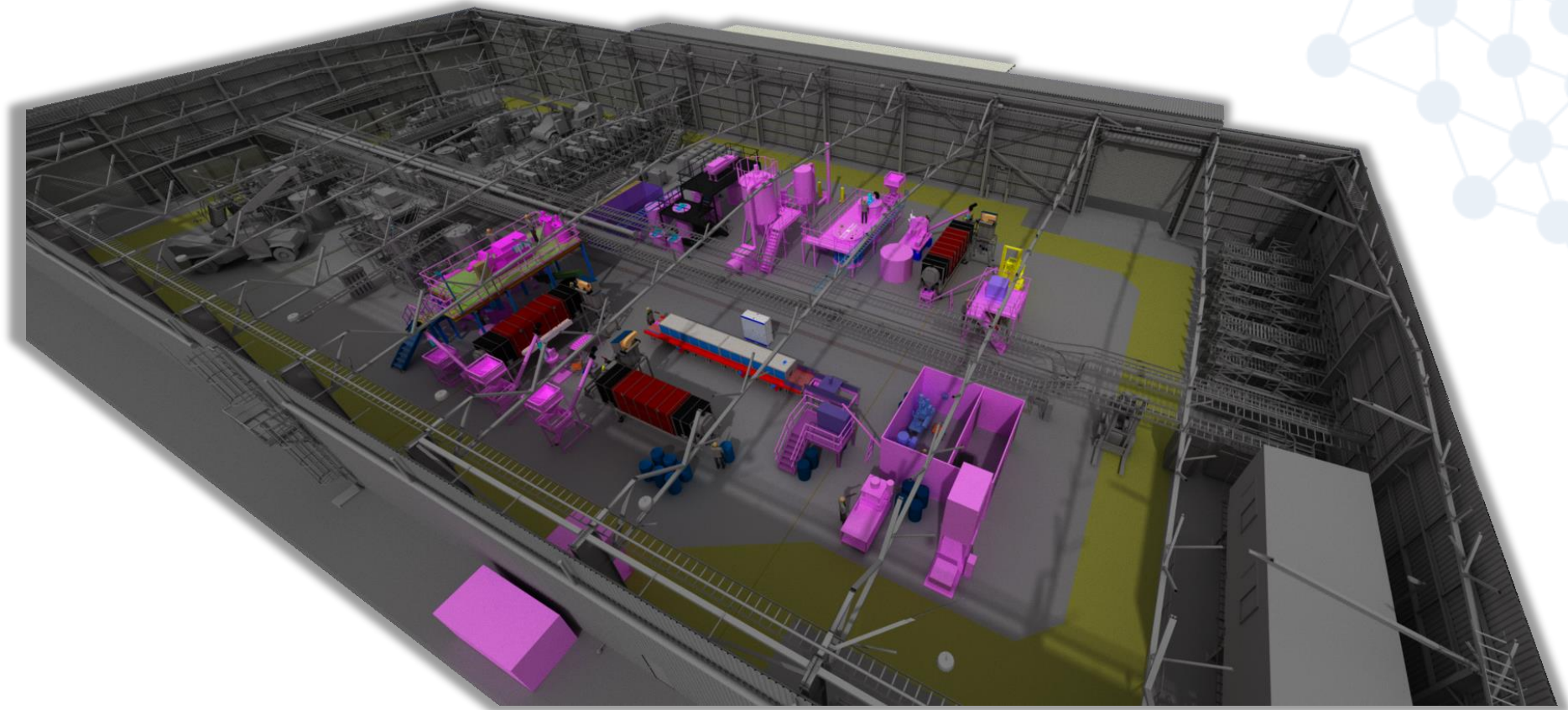
The Company is concurrently satisfying the remaining conditions precedent to the full-scale Project Final Investment Decision (FID), with a focus on product sales, offtakes and project financing.

### STAGE 1 – PPF

#### HPA circuit design and procurement progressing well

Alpha continues to rapidly deploy the first \$6.82 million tranche of the \$15.5 million grant awarded under the Critical Minerals Development Program (CMDP) to expand the capability of the Stage 1 PPF to include Alpha's full high purity product range. Recent equipment orders placed include:

- Jet mill
- Rolls crushers
- Mill air compressor



*3D schematic of the Stage 1 PPF showing installed and operating equipment in greyscale and HPA products equipment being installed in pink.*

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 short term battery storage capacity.

## Production ramp-up continuing

Ramp-up of aluminium nitrate (Al-nitrate) production has continued with production now reaching ~85% of nameplate capacity or an average 850kg of production per day. Cumulative Al-nitrate production has now reached approximately 42 tonnes at the *target 5N (99.999%) purity level*.

Following tie-in of additional process equipment from Alpha's Brisbane facility, the Stage 1 PPF is now also converting lower volumes of Al-nitrate into various high purity aluminas to support product marketing test orders.

## PRODUCT MARKETING

### Third party CMP testwork confirms outperformance using Alpha's HPA

Early stage results have been received from third party testwork on the use of Alpha's high purity nano alumina as an abrasive agent in CMP (Chemical Mechanical Polishing/Planarization) slurries. Results indicate marked overperformance of Alpha's material in polishing silicon-carbide (SiC) substrates used for high power semiconductors when compared to the reference material.

Results using Alpha's product showed:

- a 50% increase in bulk removal rate when compared to reference materials; and
- a 46% reduction in surface defectivity.

These preliminary results are significant, and particularly, as they apply to SiC substrates which are increasingly being used for high-performance semiconductors.

### Increased volume of test orders from the semiconductor sector

Alpha has continued to market its products to the semiconductor sector for CMP slurries. A further 10kg of test orders have been received in the last month with this material now under production in Brisbane from Al-nitrate precursors produced at the Stage 1 PPF.

### Follow-on high purity aluminium trihydrate orders

Alpha has received a further 3 x 1kg test orders for the recently developed 4N+ purity aluminium tri-hydroxide (ATH) product. These samples are now under production in Brisbane from Al-nitrate precursors produced at the Stage 1 PPF.

### Letter of Intent received from Litec-LLL for HPA supply

Alpha is pleased to have received a Letter of Intent (LOI) from German based LED phosphor manufacturer Litec-LLL. The LOI follows multiple successful test orders and small volume sales to Litec-LLL and sets out intent for Alpha to supply small commercial volumes of HPA (up to 500kg) during 2023.

### Supplier Onboarding

Alpha is pleased to be working with a number of potential end-users on a supplier onboarding process to position Alpha to become a large volume supplier. The process includes process systems audit and registration as well as an independent environment and social sustainability assessment rating.

### Stakeholder site visit

Alpha is hosting another site visit from a potential end-user in late January.

Commenting on recent progress, Managing Director Rimantas Kairaitis said:

*"Alpha continues to expand its products capability and outreach into high technology markets. The expanding inquiry, positive end-user testing and the commencement of onboarding Alpha as a supplier to key potential customers continues to build on the exciting momentum within the business."*

### 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 high technology markets including semiconductors, lithium-ion battery and LED lighting.

Alpha completed a Definitive Feasibility Study in March 2020 following a successful pilot plant campaign in 2019.

Alpha is now in production at its Stage 1, Precursor Production Facility which has now completed a successful commissioning and entered production ramp-up phase. The Stage 1 facility is also now being expanded to produce the full range of Alpha's high-purity materials with \$15.5M grant funding from the Australian Government.

The Company is now in the mature phases of market outreach and project financing with respect to the full scale Stage 2 HPA First Project, with the expectation of positioning Stage 2 to Final investment Decision.

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