



Alpha **HPA**

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## HPA FIRST PROJECT AND PRODUCT MARKETING UPDATE

### HPA FIRST PROJECT

- **Worley nominated as preferred ePCM contractor and awarded the HPA First Project FEED**
- **Water supply contract signed with the Gladstone Area Water Board**
- **Alpha moves to finalise the Gladstone Land Contract**
- **Stage 1 of the Lender Engineer's (ITE) process complete**
- **Precursor Production Facility FEED commenced**
- **Orica and Alpha targeting late July/early August for Agreements execution**

### MARKET INTEREST IN ALPHA'S PRODUCTS ACCELERATES

- **16 new test product orders received in last 4 weeks**
- **4 new product development orders received**

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 of the production of ~10,000tpa equivalent of high purity alumina (HPA) and related products in Gladstone QLD, using the Company's proprietary licenced solvent extraction (SX) and HPA refining technology.

## HPA FIRST PROJECT UPDATE

The Company has made strong recent progress on the HPA First Project, as detailed below:

### **Worley nominated as preferred ePCM contractor and awarded the HPA First Project FEED**

Alpha is very pleased to have nominated Worley Services Ltd ('Worley') as preferred ePCM contractor to the HPA First Project. Worley's strong project delivery team and presence in Gladstone was a major consideration and Alpha believes Worley have the right mix of experience and capabilities to deliver the HPA First Project successfully.

In addition, Alpha and Worley have executed an interim agreement for the commencement of the full scale HPA First Project Front End Engineering and Design (FEED).

The FEED Scope of Work includes:

- Developing of key documentation for use in detailed design.
- Updating the study documentation with the aim to accelerate detailed design, drawings, and documentation.
- Completing a project layout review.
- Seeking formal tenders for long lead (or critical) equipment packages
- Updating the Cost Estimates to current pricing.
- Performing project delivery planning.

## **Water supply contract signed with Gladstone Area Water Board**

Alpha is very pleased to have executed a water supply contract with Gladstone Area Water Board ('GAWB') for the Precursor Production Facility ('PPF') and the HPA First Project.

The contract sets out the terms and conditions for:

- Supply of potable water for the PPF and administration office.
- Supply of non-potable/raw (process) water for the HPA First Project.

The water supply under the contract does not start until certain conditions (including construction of necessary connecting water infrastructure) are met. The parties are currently working through the conditions together so water supply can start in accordance with the agreed timeline.

## **Precursor Production Facility**

Prudentia Process Consultants ('Prudentia') as engineers to the PPF, have advanced the FEED for the PPF, with the key workstreams including:

- Finalisation of process design criteria and mass balance.
- Generation of key plant design criteria and preparation for reagent/product logistics.
- Preparation of key long lead equipment specifications for procurement.
- Design of plant fabrication modules and layouts.

The PPF is scheduled for completion on the Gladstone Project site by July-August 2022, and will have production capacity of:

- 200 tonnes per annum (~17 tonnes per month) of either Precursor #1 (Al-nitrate) or Precursor #2 (Al-sulfate) with product mix to be determined by customer orders.
- 3 tonnes per annum of high-purity boehmite or 2 tonnes of high purity alumina for both pre-commercial orders and/or product development.

Once the Full Scale HPA First Project is commissioned, the PPF will be used exclusively for the manufacture of >200tpa of Precursor #2 (Al-sulfate cathode precursor), converting a high purity aluminium feed directly from the Full Scale HPA First Project.

## **Orica Agreements Update**

Alpha and Orica Australia Pty Ltd ('Orica') have negotiated agreements for the supply of process reagents to the HPA First Project from Orica's Yarwun facility within the GSDA, and the return offtake of process by-product.

In summary the agreements comprise:

- A Project Implementation Agreement ('PIA') where the PIA describes the capital investment obligations of the parties and the scope for project commissioning and reagent and by-product validation trials.
- A Supply and Offtake Agreement ('SOA') which describes the pricing, volume and product delivery of the process reagents and the process by-product, as well as the technical details of by-product management and QA/QC protocols.
- A Products Pre-Pay arrangement.

Orica and Alpha anticipate signing the contracts in late July or early August.

## **Gladstone Land Contract**

The Company is now working with Economic Development Queensland ('EDQ') on the finalisation of the remaining conditions precedent to the land contract, in respect of the HPA First Project site within the Gladstone State Development Area ('GSDA'), to allow for contract settlement in the September 2021 quarter.

## **Stage 1 of the Lender Engineer's (ITE) review complete**

In May 2021, Alpha appointed RPM Advisory Services ('RPM') as Independent Technical Expert ('ITE') to the potential lenders to the HPA First Project. RPM has now completed Stage 1 of the ITE review process, being the review of the HPA First Project process, the demonstration plant and process validation. RPM have now issued a 'Red Flag Report' its key initial findings.

Alpha is pleased to note the Red Flag Report identified no fatal flaws with all identified risks, after mitigation steps, considered to be low.

## **PRODUCT MARKETING ACCELERATES**

Subsequent to the announcement of the PPF and the successful capital raising, Alpha has noticed an accelerated level of inbound interest in the Company's range of high purity aluminium products. Within the last 4 weeks, the Company has received and/or shipped 16 test product samples across a range of high technology applications, as set out in more detail below.

In addition, the Company has received 4 inbound product developments requests, related to specific, high value aluminium products for specific end-user applications.

### **10 product samples requested and/or shipped to clients of APL**

Alpha has been extending its market outreach into specialty technology markets in Japan and China via the marketing MOU with APL Engineered Materials ('APL'), (ASX announcement: 28 April 2021). Alpha has received 10 products samples via APL in the last 4 weeks, including:

- Alpha's specialty alumina powder for a China based LED phosphor company.
- Alpha's bespoke, sub-1micron alumina powders to a Japan based manufacturer of speciality LED and micro-LED phosphors.
- A range of Alpha's alumina powder products to one of the largest global manufacturers of LEDs and LED phosphors, based in Japan.
- 5N purity Al-nitrate powders for a Japan based manufacturer of auto-LEDs.

### **Product samples requested and/or shipped to clients of Technologica**

Alpha has extended its market outreach into specialty technology markets in the European Union (EU) via the marketing MOU with Technologica (ASX announcement: 3 May 2021). Alpha has received a further 3 product orders via Technologica, which include:

- Alpha's 5N Al-nitrate product for micro-LED and YAG laser crystal synthesis.
- Alpha's bespoke, sub-1micron alumina powder for a German based specialist ceramics company.

### **St Gobain**

Alpha has now delivered 13 product samples to St Gobain, with another 3 products under production following product feedback. Alpha is working with St Gobain to match the exact specifications required for St Gobain's existing manufacturing processes and new processes under development.

### **Lithium-ion battery cathode manufacturers**

Alpha remains in dialogue with a range of lithium-ion battery cathode manufacturers, both directly and through intermediaries and is pleased with the end-user response to our high purity (5N) aluminium cathode precursor (Al-sulfate) and the near-term move to commercial production via the PPF.

### **Lithium-ion battery separator manufacturers**

Alpha is currently finalising manufacture of a further 4 alumina product samples for lithium-ion battery coating applications for USA based manufacturers, including:

- A new, vertically integrated battery manufacturing business.
- An established lithium-ion separator manufacturer seeking large volume supply to meet new product orders.

## PRODUCT DEVELOPMENT

Alpha continues to receive inbound end-user requests for new product development. Alpha's process flexibility, and continued operation of the Brisbane demonstration facility, provides the opportunity to rapidly adjust process conditions to deliver new product specifications.

Alpha is very selective on new product development requests and is careful to allocate product development resources only in circumstances where there is a clear commercial benefit on a successful outcome.

### Low surface area aluminas

In response to a high-value, high volume inbound enquiry from a large European manufacturing business, Alpha is adapting its process to manufacture a specific, low surface area alumina morphology.

### Specialty boehmite

Based on inbound requests, Alpha is developing a high-value specialty boehmite product for application in various coating products (including lithium-ion battery cathodes) and for use as a pre-cursor for specialty aluminas.

### Engineered aluminas

Alpha has been working with a German based LED phosphor manufacturer on an adapted process to manufacture high-value 'engineered' alumina with a specific, narrow particle sizing, without any product milling step. In the last 4 weeks, Alpha has received a further 2 inbound product enquiries which can be readily met with the process under development.

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### 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 products using the Company's proprietary licenced solvent extraction and HPA refining technology. The technology provides for the extraction and purification of aluminium from an industrial feedstock to produce 4N (>99.99% purity) alumina for the intended use within the lithium-ion battery and LED lighting industry. Alpha completed Definitive Feasibility Study (DFS) 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 2,000 operating hours delivering an expanded range of high purity product to over 50 end-users globally.

Alpha is fully funded to the commercial production at its Precursor Production Facility ('PPF') which is scheduled to commence commercial production for the Company's high purity Aluminium Precursors from August 2022.

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