



Alpha **HPA**

ABN 79 106 879 690

The Manager Companies
ASX Limited
20 Bridge Street
Sydney NSW 2000

ASX: **A4N**
ASX Announcement
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(5 pages by email)

COMMENCEMENT OF HPA FIRST PILOT PLANT HIGH-PURITY PROCESS CONFIRMED WITH >99.99% (4N) HPA PURITY

HPA FIRST PILOT PLANT OPERATIONS COMMENCE

- **The HPA First Pilot Plant in Brisbane will commence tomorrow, 2 July 2019**
- **The Pilot Plant will run as two complete end-to-end phases, with Phase 1 completing early-August, and Phase 2 completing mid-September**
- **Each of the Pilot Phases to operate at an implied process rate of approximately 4kg per day of high-purity alumina (HPA)**
- **Larger scale (2-5kg) commercial qualification samples to be despatched to selected end-users by August**

HPA ASSAYS CONFIRM HIGH PURITY

- **HPA assays from the April 2019 mini-rig process run have confirmed >99.99% (4N) purity**
- **Results confirm the ability of the modified feed to deliver more consistent and higher purity alumina**

R&D GRANT LODGEMENT

- **The Company has completed its FY18 R&D lodgement process, with an estimated rebate of \$252K, due in the next 2 weeks**
- **The FY18 R&D claim, is the pre-cursor to a substantially larger FY19 claim, expected in November 2019**

Managing Director, Rimas Kairaitis, commented; *"We are delighted to be commencing the HPA First Pilot Plant, which represents a major technical milestone in the commercialisation of the HPA First Process. We have great confidence that the Pilot operations will confirm the ability of the process to deliver high volume, high-purity alumina production using the unique, cost-disruptive HPA First process. With the assays again confirming the HPA purity generated from the process, we are excited to look ahead to the supply of commercial qualification samples to potential end-users/offtakers"*

HPA FIRST PILOT PLANT OPERATIONS COMMENCE

The Company is very pleased to announce the HPA First Pilot Plant is due to commence operations tomorrow, 2 July 2019. The pilot plant equipment has been sequentially installed and commissioned since February, and the Pilot Plant feedstock (PLS) has been prepared over the previous two weeks.

The Pilot Plant has been designed and commissioned by the Company's technology partner and by Prudentia Process Consultants, each of which will provide the personnel for the Pilot Plant operation.

The Pilot Plant has been designed at a production rate of approximately 4kg per day of HPA.

The Pilot Plant will operate as two complete end-to end phases with intervals replicating the natural breaks in the commercial process:

PHASE 1:

SX and Al-salt crystallisation:

2 July to mid-July

HPA pre-cursor production and HPA calcination:

mid-July to early-August

PHASE 2:

SX and Al-salt crystallisation:

mid-August to early-September

HPA pre-cursor production and HPA calcination:

late-August to mid-September

Alpha HPA expects to start distributing commercial scale HPA samples (2-5kg) generated from the Pilot Plant for end-user qualification testwork by August 2019.



The HPA First Pilot Plant Operations Team



Aluminium Salt Crystallisation Area



PLS (approx. 60g/L Al) ready for SX extraction



Indirect Rotary Dryer



Reagent recycle absorber

HPA ASSAYS CONFIRM >99.99% (4N) PURITY

The Company has now received assays from HPA generated from the April 2019 SX mini-rig process using the modified feedstock (ASX: 17 April 2019).

As expected, the assays repeatedly confirmed >99.99% (>4N) purity. Importantly the assays confirmed very low to levels of the battery deleterious impurities of Fe, Na and Cl.

XRD analysis (X-Ray Diffraction) also confirmed the HPA as 100% alpha form, as required for the battery applications.

Assays also confirmed most impurities identified were inherited from materials handling between the crystallization and calcination stages. With these impurity sources now identified, they can be readily removed from the process during pilot plant operation.

R&D GRANT LODGEMENT

The Company has completed its FY18 R&D lodgement process, with an estimated rebate of \$252K, due in the next 2 weeks. The FY18 R&D programme provides the basis for a significantly larger FY19 R&D claim, expected in November 2019.

For further information, please contact:

Rimas Kairaitis
Managing Director
rkairaitis@alphaHPA.com.au
+61 (0) 408 414 474

Cameron Peacock
Investor Relations & Business Development
cpeacock@alphaHPA.com.au
+61 (0) 439 908 732

About the HPA First Project

The Company's HPA First Project represents the evaluation and intended commercialisation of the production of ~10,000tpa of high purity alumina (HPA) 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. Following a successful testwork programme and Pre-Feasibility Study (PFS), updated in March 2019, Alpha HPA is now completing a pilot plant program at its dedicated laboratory facility in Brisbane, as part of a full definitive Feasibility Study (DFS) due for delivery in CY2019.

Key highlights of the PFS (ASX: 7 March 2019):

- Unit production costs of **US\$5,123** per tonne of HPA (after by-product credits)
- Annual Free Cash Flow (FCF) at full production rate, of **US\$199 million** (assuming US\$25,000/t HPA)
- Capital Expenditure of US\$149 million

Competent Persons Statement (Process Development Testwork)

Information in this announcement that relates to metallurgical results is based on information compiled by or under the supervision of Dr Stuart Leary, an Independent Consultant trading as Delta Consulting Group. Dr Leary is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM). Dr Leary has sufficient experience to the activity which he is undertaking to qualify as a Competent Persons under the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Leary consents to the inclusion of the technical data in the form and context in which it appears.

For further information on testwork results and processes see ASX announcements dated 3 June 2019, 17 April 2019, 7 March 2019, 4 December 2018, 20 November 2018, 6 September 2018, 31 August 2018, 9 July 2018, 30 April 2018, 26 April 2018, 21 March 2018, 6 March 2018, 21 February 2018, 8 December 2017, 30 November 2017, 29 November 2017, 24 November 2017 and 13 November 2017.

Cautionary Statement

The Pre-Feasibility Study (PFS) referred to in this announcement has been undertaken to assess the technical and financial viability of the HPA First Project. Further evaluation work including a Definitive Feasibility Study (DFS) is required before the Company will be in a position to provide any assurance of an economic development case. The PFS is based on the material assumptions about the availability of funding and the pricing received for HPA. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this PFS will be achieved. To achieve the range of outcomes indicated in the PFS, Pre-Production Capital in the order of A\$198 million plus working capital will likely be required. Investors should note that there is no certainty that the Company will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other "value realisation" strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company's proportionate ownership of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the PFS.

Forward Looking Statements

This PFS contains certain forward-looking statements with respect to the financial condition, results of operations, and business of the Company and certain plans and objectives of the management of the Company. These forward-looking statements involve known and unknown risks, uncertainties and other factors which are subject to change without notice, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not occur. Forward-looking statements are provided as a general guide only and there can be no assurance that actual outcomes will not differ materially from these statements. Neither the Company, nor any other person, give any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. In particular, those forward-looking statements are subject to significant uncertainties and contingencies, many of which are outside the control of the Company. A number of important factors could cause actual results or performance to differ materially from the forward looking statements. Investors should consider the forward looking statements contained in this PFS in light of those disclosures.

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