



Alpha **HPA**

The Manager Companies
ASX Limited
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Sydney NSW 2000

ASX: **A4N**
ASX Announcement
21 April 2021

REPORT ON ACTIVITIES FOR THE QUARTER ENDED 31 MARCH 2021

HIGHLIGHTS

HPA FIRST PROJECT RECEIVES QLD GOVERNMENT MCU APPROVAL

- Approval received from the Queensland Government Office of the Co-Ordinator General ('OCG') for Alpha's Gladstone State Development Area ('GSDA') application (Development Permit) for a Material Change of Use ('MCU') and construction of a high purity alumina processing plant.

SUCCESSFUL SAPPHIRE GLASS PRODUCTION BY ALOX TECHNOLOGY

- Using Alpha's HPA pellets, ALOX Technology successfully completed growth of a ~90kg high-quality single crystal sapphire boule, with good clarity colour and no defects.
- Alpha and ALOX are now in discussions on the commercial supply of HPA pellets.
- A further 200kg of HPA pellets are to be delivered to ALOX this year.

MEMORANDUM OF UNDERSTANDING WITH SAINT GOBAIN

- Alpha and Saint Gobain to work towards continued product evaluation and commercial supply agreements across the full range of Alpha's high purity aluminium products.
- Includes provision for new product development and shared intellectual property.
- Potential for future co-investment between Alpha and Saint Gobain.

CONTINUED ACCELERATION OF GLOBAL PRODUCT OUTREACH

- 6 product orders received from Saint Gobain with a further 3 product orders in development.
- 4 individual product orders received and shipped to a major German LED lighting company.
- Micro-LED technology trend driving interest in Alpha's HPA and Al-Precursor #1.

EXPANDED PRODUCT DEVELOPMENT AND CONTINUOUS IMPROVEMENT

- HPA purity from production runs now reaching 99.9986% purity.
- Successful development of sub 1-micron HPA powder for Li-B cathode applications.
- Continued purity improvement on Al-cathode pre-cursor (Al-precursor #2).
- Product development underway for Japanese ceramics counterparty and lithium-ion battery cathode developer.

Managing Director, Rimantas Kairaitis, commented; "The March 2021 quarter has been an extremely active period for the Company with a number of important milestones achieved. The end-user interest in Alpha's high purity product range continues to build as the customer outreach program matures."

OPERATIONS REVIEW

Alpha HPA Limited's ('Alpha' or 'the Company') operations in the March 2021 quarter continued to focus on three key workstreams required to support the commercialisation of the Company's HPA First Project, namely project permitting, financing and market outreach of the Company's range of high purity aluminium products including high purity alumina ('HPA'), boehmite and its two 5N purity aluminium precursors. Substantial progress was achieved on each of these work streams, as summarised in the following.

PRODUCT MARKETING UPDATE

Alpha is currently engaged in an aggressive global marketing effort across its full range of HPA, boehmite and aluminium precursor products, spanning a diverse range of end users and applications as both direct engagements and via its strategic collaborations with Traxys North America ('Traxys') and Rhineland Specialties Inc USA ('Rhineland Specialties'). The Directors continue to be highly encouraged with the level of end user engagement with the Company's products and Alpha continues to prepare and ship test samples for product assessment, pursue end user supply negotiations and expand product sales into speciality markets.

Memorandum of Understanding with Saint Gobain

In April 2021, Alpha signed a Memorandum of Understanding ('MoU') with Saint Gobain Ceramics & Plastics, Inc. ('Saint Gobain') with respect to the continued product evaluation, product development and potential future commercial supply of Alpha's products to Saint Gobain.

The MoU follows Saint Gobain's assessment of a range of Alpha's products including the despatch and testing of 6 product samples representing various high purity aluminas and high purity boehmites.

The MoU contemplates the continued collaboration between Alpha and Saint Gobain across Alpha's entire product range for potential application within a range of Saint Gobain's global business units focused on surface conditioning, battery materials, and crystals in a variety of emerging markets.

The MoU contemplates product assessment and further technical collaboration including the provision for the potential sharing of intellectual property on future innovative products developed jointly with Saint Gobain using Alpha's proprietary aluminium purification technology.

Under the MoU, a range of further test products are being prepared at Alpha's Brisbane facility for Saint Gobain.

About Saint Gobain

Saint Gobain, listed on the stock markets in Paris, London, Frankfurt, Zurich, Brussels, Amsterdam, is a global manufacturing and materials business with over 150,000 employees and with market capitalisation of >€27Bn (>\$40Bn). Saint Gobain designs, manufactures and distributes high-performance materials and solutions for the construction, mobility, healthcare and other industrial application markets.

Saint Gobain's global strategy is focused on meeting some of the fundamental challenges faced by the world today, including reducing energy consumption, limiting our impact on the environment and creating a new generation of buildings which are safe, comfortable and energy efficient. As one of the world's top 100 innovators, Saint Gobain spends ~€400M a year on R&D globally.

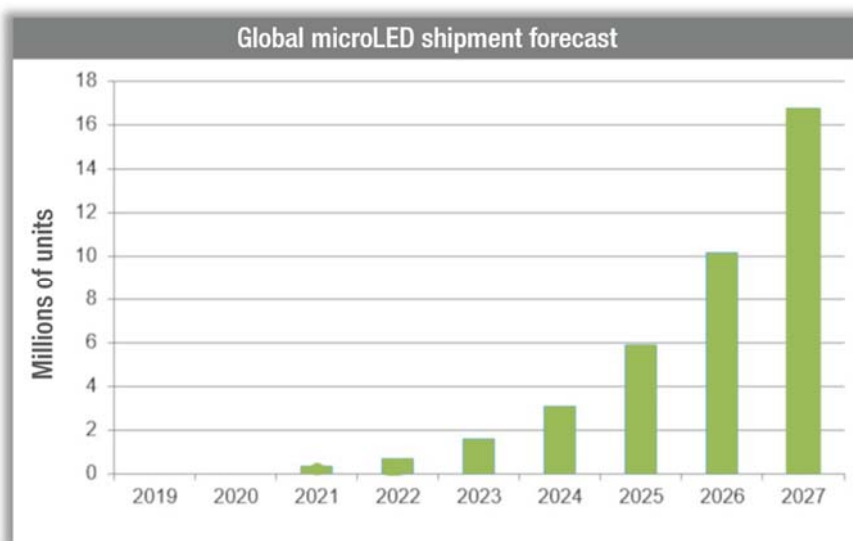
Continued product delivery to the LED lighting sector

During the quarter, Alpha continued to engage with a range of end-users across the LED lighting sector, with the Company's products having direct applications in both the manufacture of sapphire wafer LED substrates (using HPA pellets) and the synthesis of aluminate LED phosphors (using HPA powder or Al-precursor #1).

In the September 2020 quarter, Alpha shipped three product samples to a German based LED lighting manufacturer for evaluation in the synthesis of aluminate LED phosphors. Additional market outreach into this sector saw a further two product orders shipped to a second German based LED manufacturer in the December 2020 quarter.

In February 2021, Alpha received and shipped a further four different product samples to a third major German based LED manufacturer. Products included 4N purity HPA powders across a range of particle sizings, as well as samples of Alpha's 5N Al-precursor #1, to be used in solid-state and wet-state phosphor synthesis testwork.

Alpha understands that the increased interest in its products is for use in the synthesis of aluminate phosphors is being driven by increasing demand for micro-LEDs. Micro LED technology is widely tipped to supersede OLED and backlit LCD display technology over the next ten years (see graphic below).



Graphic: Forecast growth in micro-LEDs to 2027
Source (www.microled-info.com)

Successful sapphire glass production using Alpha’s HPA by ALOX Technology

In December 2020, Alpha completed a ~96kg test order shipment of HPA pellets to sapphire glass manufacturer ALOX Technology Corporation (ALOX), whose sapphire glass growth facilities are located in the USA.

ALOX is an innovation company specialising in the production of premium sapphire crystal products using new crystal growth technology. ALOX is a growing company based in the USA and Europe, cooperating with the world’s largest manufacturing companies in the optics industry.

During the quarter, using Alpha’s HPA pellets, ALOX reported the successful growth of a ~90kg high quality single crystal sapphire boule, with good clarity colour and no defects. No defects were detected under laser light inspection.

The boule was successfully slabbed into sapphire crystal ingots and gave a maximum rating for sapphire ingot yield.

Alpha and ALOX are now in discussions on the commercial supply of high purity alumina pellets.



~90kg single crystal sapphire glass boule grown by ALOX using Alpha’s HPA pellet feedstock

PRODUCT DEVELOPMENT AND CONTINUOUS IMPROVEMENT

During the quarter, Alpha's technical team, operating out of the Company's demonstration plant in Brisbane, maintained a process of continued product improvement and development with a view to producing the highest quality aluminium products globally. The Company's interaction with end users continues to refine Alpha's high purity product offering.

HPA purity now reaching 99.9986% purity

During December 2020 to February 2021, Alpha received regular purity assay data for its ongoing HPA product production campaigns, including the 96kg pellet order sent to ALOX.

Production assays consistently reported HPA purity between 99.996% and 99.998% purity (20-30ppm impurities), with best results of 99.9986% purity (14ppm total impurities). These results represent ~150kg of high purity alumina production and consolidate Alpha's established trend of continued process and purity improvement.

Successful development of sub 1-micron HPA powder for lithium ion battery (Li-B) cathode applications

Following interaction with a large Li-ion cathode materials manufacturer, Alpha successfully developed process conditions to produce an ultra-fine (particle sizing <1 micron) alumina powder for Li-B cathode doping.

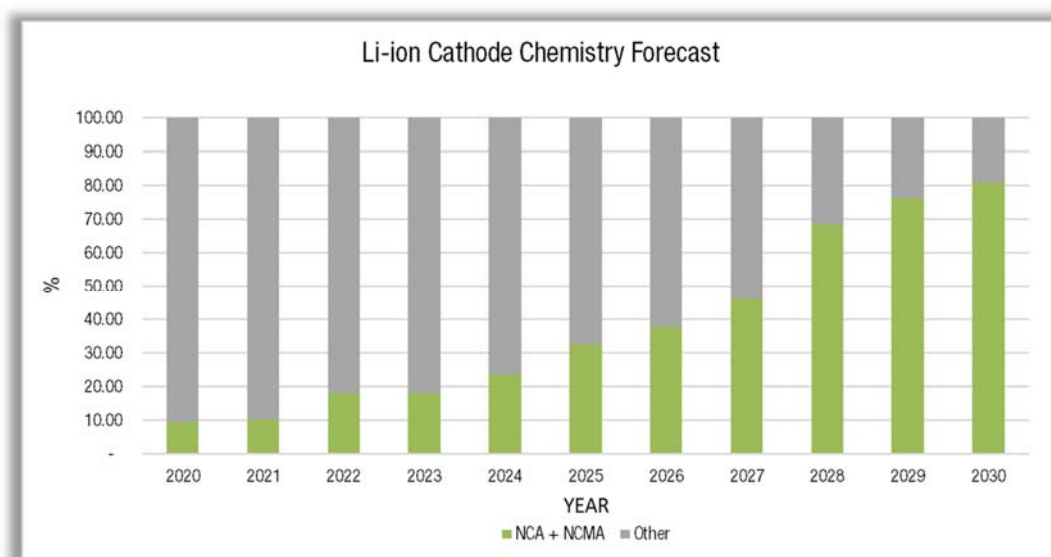
This product has additional applications in LED phosphor applications as well as surface conditioning (specialist polishing). During the quarter, Alpha manufactured and shipped three test product samples of this ultra-fine alumina powder for end user testwork.

Continued purity improvement on Al-cathode precursor (Al-precursor #2)

During the quarter, additional production batches of Alpha's Al-cathode precursor (Al-precursor #2) using improved process conditions resulted in an upgraded product purity to beyond the detection levels of the third party analytical techniques (ME-ICPMS), recording <1ppm total impurities.

Alpha is not aware of comparable purity levels for this product globally.

This precursor is used in the direct synthesis of aluminium-bearing Li-ion battery cathode active materials, most notably NCA and NCMA cathode chemistries (see forecast demand graphic below). Alpha has already distributed a test order of this product to a major European Li-B cathode materials manufacturer for testwork and is continuing to expand its market outreach to manufacturers of cathode active materials.



*Aluminium bearing cathode active chemistries (NCA + NCMA) are forecast to represent
80% of all lithium-ion battery cathode chemistries by 2030
(Source UBS, Dec 2020)*

Product development projects underway

A number of product development projects which remain underway within Alpha's Brisbane facility include:

- The development of HPA pellets with bespoke specifications for a Japanese based specialist ceramics and sapphire glass manufacturer. These required specifications have now been achieved and are expected to lead to a product order.
- The development of an HPA powder with bespoke specifications for both existing cathode and potential future cathode manufacturers.

COMMERCIAL REVIEW

HPA First Project Receives Queensland Government MCU Approval

In February 2021, the Company was advised by the Queensland Government Office of the Co-Ordinator General ('OCG') that its Gladstone State Development Area ('GSDA') application (Development Permit) for a Material Change of Use ('MCU') and construction of a high purity alumina processing plant, had been approved.

The MCU approval represents the major State Government approval for the HPA First Project, with the final approval required being the Environmental Authority ('EA'), which is issued by the Queensland Department of Environment and Science ('DES').

Working with permitting consultants, AECOM, Alpha is currently completing the applications and supporting studies for the EA, with EA approval anticipated in the June quarter 2021.



HPA First Project Site – GSDA Development Permit has now been approved

ePCM Update

During the quarter, Alpha made significant progress with regards to the ePCM contractor process for the HPA First Project, co-ordinated from Alpha's Brisbane office.

- The Expressions of Interest (EOI) process for the ePCM contract concluded at the end of 2020, giving Alpha sufficient information to proceed with the Request for Proposals (RFP) process with a smaller set of potential ePCM contractors.
- The RFP was issued in mid-January 2021 and submissions from participating ePCM contractors have been received.
- The engineering team is reviewing these submissions and are on track to have a recommendation to award an ePCM contract in the June quarter.

Orica Definitive Agreements Update

Alpha and Orica Australia Pty Ltd ('Orica') are negotiating and finalising the definitive 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.

During the quarter, Alpha and Orica made substantial progress on the finalisation of definitive agreements:

- The definitive agreements will be comprised of a Project Implementation Agreement ('PIA') and a Supply and Offtake Agreement ('SOA'), where the PIA describes the capital investment obligations of the parties and the SOA describes the pricing, volume and product delivery of the process reagents and the process by-product.
- The PIA also includes the scope for project commissioning and reagent and by-product validation trials.
- Further detailed testwork on process reagents and process by-product has been completed under the joint Orica-Alpha Engineering Co-Operation Group ('ECG') with detailed product specifications and test methods now close to completion. The ECG has also now agreed the detailed QA/QC protocols related to by-product handling and delivery.

The definitive agreements include a number of conditions precedent, including completion of final permitting and project financing of the proposed HPA First Project. The definitive agreements are now progressing through each parties' internal approvals.

The Company is pleased with the progress of the agreements and remains confident they will be concluded in line with the requirements of the current Project Schedule delivery timetable.

Project Financing Update

During the quarter, Alpha continued working actively on the HPA First Project Financing with support from its advisors (KPMG DAT). The Company is seeking to debt fund a substantial component of the HPA First Project CapEx from a combination of Australian Commonwealth Government lenders and commercial banks.

KPMG DAT have also included selected equipment and service related financiers and an Export Credit Agency ('ECA').

Alpha has now engaged RPM Advisory Services as an Independent Technical Expert ('ITE' or 'Lenders Engineer') to complete the technical due diligence component of the HPA First Project financing.

Alpha continues to progress discussions with individual potential lenders and service requests for information as they arrive.

The Company is very encouraged by the level of interest in the HPA First Project financing and in the funding interest in the de-carbonising sector generally.

Related Party Expenditures

During the March quarter the aggregate amount of payment to related parties and their associates totalled \$252,000 comprising \$156,000 of payments to Directors or Director related entities for Directors' consulting fees and \$96,000 in fees were paid to MIS Corporate Pty Limited ('MIS'), an entity in which Directors Norman Seckold and Peter Nightingale have a controlling interest. MIS provides full administrative services, including administrative, accounting and investor relations staff both within Australia and Indonesia, rental accommodation, services and supplies, to the Group.

Receipt of R&D Tax Incentive

During the quarter, the Company received an R&D Tax Incentive refund of \$852,266 for the 2019/20 financial year.

The R&D Tax Incentive is an Australian Government program under which companies receive cash refunds for 43.5% of eligible expenditure on research and development.

The incentive refund results from R&D expenditure on the Company's HPA First Project.

Director Appointment

During the quarter Company announced the appointment of Mr Cameron Peacock as a Non-executive Director.

Cameron holds a Bachelor of Commerce from the University of Western Australia, a Graduate Diploma in Applied Finance and Investment from FINSIA and a Master of Applied Finance from the University of Melbourne.

For more than 20 years, he has worked in numerous finance focused roles across banking, private equity and equity capital markets. In his more recent roles as an Investor Relations and Business Development executive across several resource companies, he has been deeply involved in the preparation and execution of numerous large scale primary and secondary capital market transactions.

Cameron has an established network across the global resources and generalist investment funds and a well established track record in assisting companies build and manage their institutional and retail investor bases.

Admission to the All Ordinaries Index

During the quarter, the Company was admitted to the S&P/ASX All Ordinaries Index.

COLLERINA PROJECT – NSW (100% Alpha and subject to commodity split agreement)

In line with the Company's plans to focus on advancing the HPA First Project, no exploration activities were undertaken at the Collerina project during the quarter.

WONOGIRI PROJECT – INDONESIA (45% Alpha, subject to Conditional Share Purchase Agreement)

During the December quarter, the Company signed a Conditional Share Purchase Agreement ('CSPA') with Far East Gold Ltd ('FEG') for the sale of its interest in the Wonogiri copper-gold project in Indonesia.

Alpha currently holds a 45% participating interest in the Wonogiri Project via its wholly owned subsidiary, Wonogiri Pty Ltd, which holds the 45% interest in the Indonesian operating company, PT Alexis Perdana Mineral ('PT Alexis').

FEG has now taken over the management and funding of PT Alexis and must fulfil a number of conditions to satisfy completion of the Company's 45% interest in the Wonogiri Project.

During the quarter, FEG advised it had successfully completed a \$5.5M seed capital raising.

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About the HPA First Project

The Company's HPA First Project represents the evaluation and intended 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. Following a successful testwork program and completion of a Definitive Feasibility Study (PFS) in March 2020, Alpha has developed a range of ultra high purity aluminium products which it currently produces from its demonstration facility in Brisbane.

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

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:

2 March 2021, 14 December 2020, 8 October 2020, 28 September 2020, 8 September 2020, 20 August 2020, 28 July, 2020, 19 June 2020, 23 April 2020, 25 March 2020, 17 March 2020, 10 March 2020, 23 December 2019, 10 December 2019, 10 October 2019, 23 September 2019, 28 August 2019, 5 August 2019, 25 July 2019, 2 July 2019, 1 July 2019, 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.

Forward Looking Statements

The DFS contains certain forward-looking statements with respect to the financial condition, results of operations, 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 the DFS in light of those disclosures.