

Alpha HPA

The Manager Companies - ASX Limited
20 Bridge Street
Sydney NSW 2000

ASX: **A4N**
ASX Announcement
28 April 2023
(11 pages)

ACTIVITIES REPORT FOR THE QUARTER ENDED 31 MARCH 2023

HIGHLIGHTS

STAGE 1 – PPF

- Al-nitrate production at ~100 tonnes at target 5N (99.999%) purity
- Demo-scale, HPA and custom HPA tablet manufacture established
- Second tranche of \$15.5M CMDP grant received
- Scaled up HPA circuit equipment manufacture well underway
- First equipment deliveries for HPA circuit received
- Solar array quotations under assessment

PRODUCT MARKETING

- **LED Lighting Sector:**
 - Letter of Intent received from Litec-LLL
 - Alpha's 5N Al-nitrate outperforms in next generation micro-LED phosphor
 - Multiple HPA orders for sapphire glass
- **Lithium-ion Battery (Li-B) Sector:**
 - Scaled up HPA order delivered to key Li-B cathode counterparty
 - Multiple product test work samples generated from Korean Battery Show
 - ~25 product samples delivered during the quarter
- **Semi-Conductor Sector:**
 - Multiple test orders from Chemical-Mechanical Polishing (CMP) slurry makers
 - Collaborative slurry test work with major CMP counterparty
 - Third party CMP testwork confirms outperformance using Alpha's HPA
- **Other Product Marketing:**
 - 5N purity achieved for Alpha's high purity alumina tri-hydrate (ATH)
 - Multiple product requests from existing HPA producers
 - HPA product orders delivered for lithium extraction

CORPORATE

- Agreements with Ebner-Fametec to enter production of synthetic sapphire glass
- Sapphire glass production a value-adding complement to the HPA First Project
- HPA to sapphire glass represents an approx. 10x net value uplift per alumina unit

STAGE 2 – FULL SCALE PROJECT

- \$21.7M Grant support from the Queensland Government
- Multi-product engineering advanced
- Project financing negotiations advanced

HPA FIRST PROJECT

SUPPLYING DE-CARBONISATION

The Board of Alpha HPA Limited ('Alpha' or 'the Company') is pleased to provide the March 2023 quarterly activities report.

Alpha remains strongly focused on the delivery of the HPA First Project in Gladstone, Queensland, which represents the commercialisation of the Company's proprietary aluminium purification and refining technology. The HPA First Project will deliver a range of ultra-high purity aluminium products that are critical materials to the supply chains of key de-carbonising high-technology sectors including:

- LED lighting;
- Lithium-ion batteries; and
- Semi-conductors.

HPA First Project activities in the March 2023 quarter were focused on:

- Production of 5N (>99.999%) purity aluminium nitrate (Al-nitrate) and demo-scale production of high purity alumina products within the Stage 1 Precursor Production Facility ('PPF'). The Stage 1 PPF is the Company's first commercial production facility representing the acceleration of commercial production of the Company's ultra-high purity aluminium precursors. By the end of the quarter, the Stage 1 PPF had successfully produced more than 100 tonnes of 5N purity Al-nitrate.
- Deploying the Federal Government's \$15.5M Critical Minerals Development Program (CMDP) on design and procurement of major equipment required for the Stage 1 PPF's HPA circuit.
- Expanded product marketing and product development activities of the Company's suite of ultra high-purity precursor and alumina products, bolstered by further small-volume product sales and increasingly advanced offtake discussion with a growing array of potential end users.
- Developing a robust process flow sheet for the production of high purity (5N) alumina tri-hydroxide (ATH).
- Finalising agreements with the Ebner-Fametec Group to provide a framework for the Company to enter the downstream production of synthetic sapphire glass.
- Continuing to concurrently advance detailed engineering studies and Project Financing discussions with Government lending agencies to facilitate a Final Investment Decision for the full scale HPA First Project.

Further details on these activities are outlined below.

STAGE 1 - PPF

HPA circuit expansion

During the quarter, Alpha continued to rapidly deploy the first \$6.82 million (including GST) 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. All major equipment orders are now finalised and under construction (see example images on following page). First deliveries of HPA circuit equipment have been received at site.

Alpha has also now completed the first milestone report under the CMDP and has received the second payment tranche (\$8.525 million including GST).

In addition, quotations for manufacture and installation of the Stage 1 PPF rooftop solar array have been received and are under assessment ahead of contract award.

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

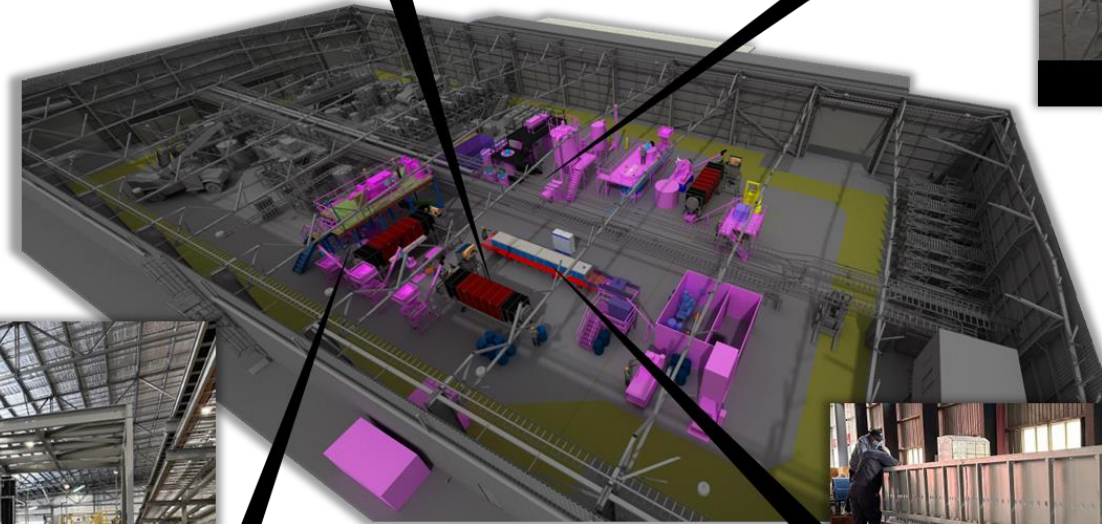
- the expansion of Stage 1 PPF production capacity of aluminium nitrate and aluminium sulphate;
- the capability to produce up to 10tpa of additional capacity of HPA production;
- the capability to produce up to 10tpa of additional capacity of High Purity Boehmite production;
- production of HPA tablets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



Rotary HPA Kilns



Boehmite spray dryer



HPA Precursor Structural Steel Module



HPA Tunnel Kiln

3D schematic of the Stage 1 PPF showing installed and operating equipment in greyscale and equipment being installed in pink (the HPA products equipment). Call out windows show construction progress of key equipment.

Stage 1 production

Production of high purity aluminium nitrate (Al-nitrate) has continued, with cumulative Al-nitrate production having now reached approximately 100 tonnes at the target 5N (99.999%) purity level. Production levels are being maintained at around 850kg per day, as the conversion of Al-nitrate into additional product lines ramp up.

Ahead of the commissioning and installation of the Stage 1 HPA circuit, the Stage 1 PPF is now also at steady state, with demonstration scale production of 4N purity gamma phase alumina and alpha phase aluminas, as well as the production of custom-shaped sintered HPA tablets for Ebner-Fametec (refer ASX: 23 March 2023).

These production lines are now servicing approximately 500kg of HPA product orders across a range of potential customers.



Selected production photos from Stage 1 PPF. Clockwise from top left, larger volume gamma HPA for Li-B cathode customer, Al-Nitrate inventory, and custom, sintered HPA tablets for Ebner-Fametec.

PRODUCT MARKETING

The March quarter saw the Company continue to make consistent progress in its ongoing product qualification and discussion with potential end users across its range of ultra-high purity aluminium products.

The quarter's marketing activities were highlighted by the following developments.

LITHIUM-ION BATTERY SECTOR

The Lithium-ion battery (Li-B) sector remains a major marketing focus for Alpha. During the quarter the Company delivered over 25 test samples to various end-users in the sector, as well as collation of end-user feedback and provision of pricing and freight terms to key target customers. Other marketing highlights are summarised below:

Scaled up HPA order delivered

As part of qualification testwork with an EU based cathode manufacturer, Alpha recently delivered a larger volume HPA test sample for the third phase of testwork. The ability to supply these larger volumes has been enabled through the larger volume production capacity of the Stage 1 PPF.

Korean Battery Show

Alpha recently attended the Inter Battery Show in Seoul, South Korea in mid-March. Contact with a number of target end-users and industry intermediaries resulted in a further 14 product test orders, which have been partly fulfilled. Alpha also received a modest HPA sales order (100kg @ US\$35/kg) now under manufacture at the Stage 1 PPF.

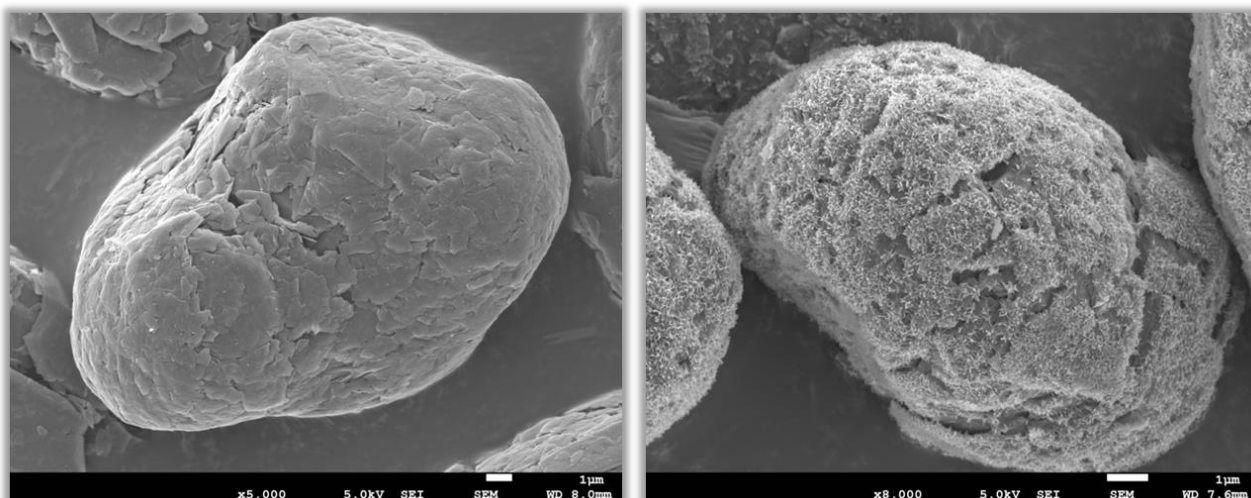
The sentiment amongst participants and agents at the Show confirmed an industry consensus of the tightening supply of the 4N+ HPA sector.

Al-oxide coated anode

Alpha is engaged at various stages of testwork and analysis with eight separate battery makers, manufacturers and developers on the application of aluminium oxide coating onto anode active materials (AAM) for use in lithium-ion batteries. The Al-oxide coating process uses Alpha's high purity Al-nitrate as a precursor and provides for a rapid, uniform coat of Al-oxide onto AAM particles, which provides a number of performance and safety benefits.

During the quarter the Company received third party independent testwork on coated graphite AAM using Alpha's coating process with results confirming material performance benefits including:

- increased first cycle capacity, resulting from the reduction in first cycle lithium loss, and
- increased power retention.



Scanning Electron Microscope images of uncoated graphite AAM (LHS) and AAM coated with Al-oxide using Alpha's Al-Nitrate process (RHS)

SEMI-CONDUCTOR SECTOR:

Multiple test orders from CMP slurry makers

During the quarter, Alpha serviced a range of sample requests, dominantly Alpha's nano-HPA powder, to end-users utilising our products as either abrasives or oxidants in the formulation of Chemical-Mechanical Polishing (CMP) slurries. CMP slurries are used in the polishing of semi-conductor substrates, particularly silicon-carbide substrates.

End-users requesting Alpha's materials are dominantly US based, with two end-users based in Japan.

Alpha has shipped approximately 13kg of nano-alumina powders to CMP end-users in the last month, with a further 2 orders under manufacture.

Collaborative slurry test work with major CMP counterparty

As a component of Alpha's engagement with CMP end-users the Company has commenced a program of collaborative slurry testwork with a world leading supplier of CMP slurries to the semiconductor sector. This work includes formulation and testwork of a range of nano-HPA based slurries.

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:

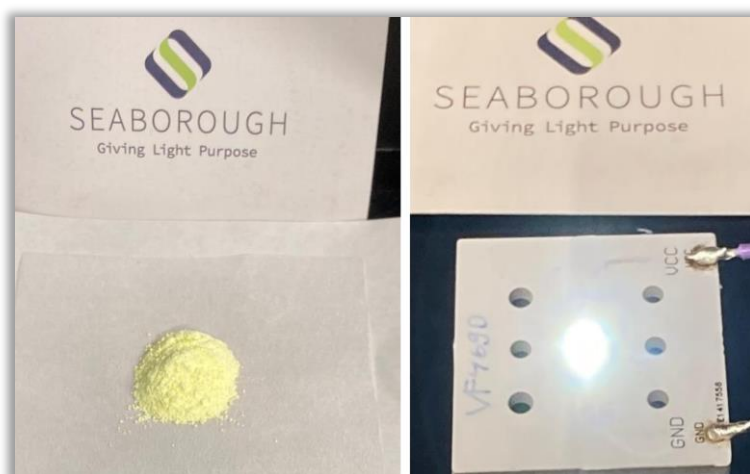
- a 50% increase in bulk removal rate when compared to reference materials; and
- a 46% reduction in surface defectivity.

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

LED LIGHTING SECTOR

Alpha's 5N Al-nitrate outperforms in next generation micro-LED phosphor testwork

Alpha has received test results for its Al-nitrate from advanced LED research group, Seaborough, based in the Netherlands. Seaborough are developing the next-generation euro-LED technology, which uses nano-phosphors to retain high efficiency in 'warm' LED illumination lighting. Alpha's 5N purity Al-Nitrate was used to synthesis the YAG:Ce nano-phosphors used in the euro-LED and showed superior performance (higher quantum yield) compared to alternative materials. Seaborough is in the process of commercialising the technology through licensing arrangements with established LED manufacturers.



YAG:Ce nano-phosphors made with Alpha's 5N Al-Nitrate (left photo). The same phosphors emitting on top of a mid-power LED chip, showing close to 100% quantum yield (right photo).

Letter of Intent received from Litec-LLL for HPA supply

During the quarter, Alpha was 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.

Multiple HPA orders for sapphire glass

Alpha is progressively servicing a range of test order requests from sapphire glass end-users located in the EU (Ebner-Fametec), Japan and South Korea. With the demo-scale production of sintered HPA tablets now operating on a 24/7 basis within the Stage 1 PPF, these orders are expected to complete in May.

OTHER PRODUCT MARKETING

5N purity achieved for Alpha's alumina tri-hydrate (ATH)

External, third party assays on Alpha's recent ATH production has formally confirmed 5N (>99.999%) purity. Purity levels were confirmed by the industry standard glow discharge mass spectroscopy (GDMS) technique, with a total of 73 metals assayed totalling 6 parts per million metal impurities. This is potentially very significant in marketing to end-users utilising ATH as a precursor for specialty HPA product lines.

Multiple product requests from existing HPA producers

Alpha has received and despatched multiple products in response to requests from existing producers of high purity alumina based in Japan and the EU. Samples include various aluminas as well as Alpha's recently developed high purity (5N) alumina tri-hydrate (ATH) product.

ATH is the first stage product produced in the incumbent alkoxide process used to manufacture HPA by most established producers.

HPA product orders delivered for lithium extraction testwork

In March Alpha delivered high-purity gamma alumina and high purity ATH product orders to Europe for testwork in the synthesis of lithium-extraction adsorbents.

Supplier Onboarding

Alpha is now finalising an independent environment and social sustainability assessment rating as a pre-condition to the supplier onboarding process required by a number of potential end-users.

STAGE 2 - FULL SCALE PROJECT

Queensland Government Grant – Alpha Awarded up to \$21.7M

During the quarter the Company announced that it had executed a funding agreement with the Queensland Department of State Development, Infrastructure, Local Government and Planning ('State') to provide grant funding of up to \$21.7 million. The funding assistance is to be provided in support of capital expenditure for the Stage 2 (full scale) HPA First Project (Project) in Gladstone.

With respect to the provision of grant funding from the Queensland Government, the following is for noting:

- The grant is made to the Company by the State of Queensland (acting through the Department of State Development, Infrastructure, Local Government and Planning) ('the State') under the Industry Partnership Program.
- The grant is to assist the Company in the construction, commissioning and operation of the Company's HPA First Project ('the Project') at Gladstone, Queensland.
- Material preconditions to the grant include:
 - the Company provides reasonable evidence to the State that the Company has finance approval to undertake the Project;
 - the Company provides security in the form of a bank guarantee from proceeds at the time of receipt of the first milestone payment;
 - the Company has feedstock and offtake agreements in place for the Project;
 - the State approves the Project Plan which details the Project's construction milestones.
- The grant is payable to the Company as reimbursement of Project expenditures over seven milestones within the agreement term of six years to 31 March 2029, subject to the Company satisfying performance requirements including:
 - entering into contracts for construction, purchase and commissioning of plant and equipment and commencement of operations in accordance with the Project Plan;
 - payment of a total of \$367.5 million in project expenditure;
 - employing and maintaining an average of 151 full time equivalent employees;
 - incurring \$58.2 million in Queensland supply chain expenditure; and
 - scaling to a minimum production of 10,640 tonnes per annum of products per annum.

Failure to satisfy the preconditions or milestone conditions may result in the State terminating the grant.

Multi-product engineering advanced

The Company continues to work on refreshing the full scale Stage 2 facility engineering to accommodate the new product lines. The execution strategy for the project is being developed to optimise costs and leverage contractor knowledge and commercial interest. The estimate for structural, mechanical and piping (SMP) works including wrap around engineering for key vendor packages is progressing well with our SMP partner developing a detailed 3D model for estimating purposes. Early discussions with electrical and instrumentation (E&I) and earthworks/civil contractors are also in progress and the engineering team is updating materials lists to reflect the new layout of the facility.

Project financing negotiations advanced

In conjunction with the engineering design and costing update work, Alpha continues to engage with an array of Project financiers, including industry participants and the Australian and Queensland State Governments, to finalise a financing package for the construction of the full scale Stage 2 Project.

Whilst negotiations are incomplete, Alpha is confident that the HPA First Project sits comfortably in the forefront of the Government's strategy for the development of the critical minerals sector in Australia.

CORPORATE

AGREEMENTS TO ENTER SAPPHIRE GLASS PRODUCTION WITH EBNER GROUP Agreements Summary

During the quarter Alpha announced it had reached agreement with Ebner Industrieofenbau GmbH ('Ebner') and Ebner subsidiary Fametec GmbH ('Fametec'), Ebner-Fametec on potential co-operation between the companies on the commercial roll-out of Ebner-Fametec's sapphire growth technology utilising HPA feedstock material from Alpha.

Having commenced discussions in mid-2022, and following a process of mutual due diligence, mutual site visits and production testing of sapphire glass growth utilising Alpha's custom high purity alumina (HPA) tablets in Ebner-Fametec's sapphire growth units, the parties signed a series of agreements providing for a staged entry by Alpha into the production of synthetic sapphire using Alpha's HPA feed material, with a specific focus on supplying the LED lighting sector.

The agreements include the following:

- Commercial and Technical proposals
- Technology Licence Agreement
- Letter of Intent (LOI)

Together the agreements provide for the purchase by Alpha of an initial 2 crystal growth units for installation into the Stage 1 PPF in Gladstone (**Phase A**). With assistance from Ebner-Fametec, these units will be used to qualify Alpha's sapphire with selected end-users, in addition to establishing its ultra-high purity HPA tablets as a premium raw material feed to downstream end-user markets.

The Phase A investment for the purchase, installation and commissioning of the initial 2 growth units including supporting utility connection costs (water, gas, E&I) is estimated at ~AUD\$3.4M.

Delivery of the initial growth units is expected in January 2024, with sapphire qualification anticipated by July 2024. Under the Licensing Agreement and LOI, Ebner-Fametec will provide technical oversight during the installation, commissioning and qualification phase.

On successful qualification under Phase A and subject to approval by Alpha's Board, the LOI also contemplates an expansion to up to 100 growth units by the end of 2025 in two further stages (**Phase B and C**).

Phase B consists of a further 48 growth units and Phase C consists of a further 50 growth units on commercially agreed terms. The investment will be made by an Alpha 100% owned subsidiary, with the location of the Phases B and C roll-out to be determined, based on an assessment of the most favourable logistics, including access to renewable energy.

About Ebner-Fametec

Fametec is a private Austrian based subsidiary of the Ebner Group that has developed a proprietary crystal growth technology to produce sapphire crystals in multiple shapes, with a special focus on larger-sized sapphire crystals.

Fametec's crystal growth process, known as the McSAP (Multi c-Axis Sapphire) method has been developed over 10 years and with estimated R&D expenditure of over €20M. C-axis sapphire crystal growth is able to achieve ~80% utilisation of the crystal boule (compared to ~35-40% for current industry standard A-axis crystals) with ~50% power saving (per kilogram of utilised crystal) realised through greater utilisation per crystal boule and growth of multiple boules per production run, realising a materially lower carbon footprint than other crystal growth processes.

Fametec's vision is to supply large-size sapphire substrates that are 'green' sapphire, grown using 100% sustainable energy sources. Fametec's 'green' sapphire is significantly more energy-efficient, of higher quality, and priced more competitively for use in micro-LED, power and optical applications.

Ebner Industrieofenbau GmbH ('Ebner') Group is a large privately owned Austrian manufacturer with over 70 year history in the design and construction of industrial furnaces for the heat treatment of metals. Ebner is a global market leader in numerous application areas and has over 1,400 employees with production sites in Europe, Asia and USA. Ebner has been active in R&D development and commercialisation activities in the field of LED's and semiconductor materials since 2005.

Sapphire Industry Dynamics and Investment Rationale

Synthetic sapphire glass is produced from premium purity HPA feedstock in bespoke, high technology growth furnaces.

After an extended period of investigation into the sapphire glass market and manufacturing process, Alpha has identified this as a unique opportunity to partner with a world class company and innovator and capitalise on a significant value adding downstream use of its HPA product.

Traditionally, Russian and Chinese companies have dominated the industry, accounting for >80% market share however there is now growing reluctance from Western customers to purchase Russian product, most notably from the world's current largest sapphire glass supplier, Russian company Monocrystal (estimated to represent 25-40% of global sapphire production).

Other factors constructive to Alpha's entry into the sapphire market include:

- **Sapphire glass is a direct consumer of HPA** - an established presence in this market is likely to drive an upstream demand for Alpha's ultra-high purity alumina tablets;
- **Attractive, high-growth, end-user markets** - a broadening array of Western customers is driving demand for low carbon intensity synthetic sapphire, particular across the future-facing micro/mini LED and high-end optics markets.
 - LED – underpinned by mini/micro LEDs designed for optimal picture quality and energy efficiency. The mini and micro LEDs markets are predicted to grow to US\$17 bn by 2026, with wafer demand for micro LEDs forecast to grow at a CAGR >500% between 2023-2027 (source MarketWatch Inc).
 - 'Optics' – including watch faces, sapphire windows, phone lens covers, specialised medical applications and defence applications. The optics market generally attracts a price premium and is more demanding in sapphire quality in terms of clarity and colour. The sapphire optics market size is estimated to be \$900m, growing at 18% p.a.
- **Attractive economics** - conversion of HPA to sapphire glass is estimated to represent a net revenue uplift of ~10x per unit of alumina with sapphire growth capturing an estimated 50% greater cash flow margins than producing HPA and precursors.
- **An intensifying global trend towards re-shoring/friend-shoring supply chains.**
- **A growing necessity to decarbonise supply chains to meet stringent emission targets.** With sapphire growth being an energy intensive process, Ebner-Fametec lower energy technology, combined with Alpha's ability to access renewable energy provides an attractive alternative to the higher carbon intensity of the current global sapphire glass producers.



Sapphire crystal growing units at Ebner-Fametec's Austrian facility

Related Party Expenditures

During the March quarter, the aggregate amount of payment to related parties and their associates totalled \$413,333 comprising \$313,333 of payments to Directors or Director related entities for Directors' consulting fees and \$100,000 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, Project commercial services, accounting, business development, staff, rental accommodation, services and supplies to the Group.

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 commenced commissioning ahead of commercial production of the Company's high purity Aluminium Precursors in the December quarter 2022.

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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Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

Alpha HPA Limited

ABN

79 106 879 690

Quarter ended ("current quarter")

31 March 2023

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
1. Cash flows from operating activities		
1.1 Receipts from customers	15	17
1.2 Payments for		
(a) research and development	(622)	(2,353)
(b) product manufacturing and operating costs	-	-
(c) advertising and marketing	-	-
(d) leased assets	-	-
(e) staff costs	(1,611)	(3,911)
(f) administration and corporate costs	(3,296)	(5,072)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	192	292
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	8,821
1.8 Other (provide details if material)	82	82
1.9 Net cash from / (used in) operating activities	(5,240)	(2,124)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(4,091)	(19,034)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	(34)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
2.2	Proceeds from disposal of:		
	(a) entities	-	-
	(b) businesses	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) intellectual property	-	-
	(f) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	Net cash from / (used in) investing activities	(4,091)	(19,068)
3.	Cash flows from financing activities		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	19,792
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	3,540
3.4	Transaction costs related to issues of equity securities or convertible debt securities	(2)	(51)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
3.10	Net cash from / (used in) financing activities	(2)	23,281
4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	28,258	16,825
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(5,240)	(2,124)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(4,091)	(19,068)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(2)	23,281
4.5	Effect of movement in exchange rates on cash held	14	25
4.6	Cash and cash equivalents at end of period	18,939	18,939

5. Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts		Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	18,939	28,258
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	18,939	28,258

6. Payments to related parties of the entity and their associates

6.1 Aggregate amount of payments to related parties and their associates included in item 1

6.2 Aggregate amount of payments to related parties and their associates included in item 2

**Current quarter
\$A'000**

413

-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

Director fees, salaries and superannuation payments.

Quarterly cash flow report for entities subject to Listing Rule 4.7B

7. Financing facilities

Note: the term "facility" includes all forms of financing arrangements available to the entity.

Add notes as necessary for an understanding of the sources of finance available to the entity.

	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 Total financing facilities	-	-

7.5 Unused financing facilities available at quarter end

-

7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.

N/A

8. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(5,240)
8.2 Cash and cash equivalents at quarter end (item 4.6)	18,939
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	18,939
8.5 Estimated quarters of funding available (item 8.4 divided by item 8.1)	3.61

Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.

8.6 If Item 8.5 is less than 2 quarters, please provide answers to the following questions:

8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer: Not applicable.

8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer: Not applicable.

8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: Not applicable.

Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.

Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 28 April 2023.

Authorised by: By the Board.
(Name of body or officer authorising release – see note 4)

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.