The Manager Companies - ASX Limited
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ASX Announcement
8 August 2024
(6 pages)

PROJECTS UPDATE

HPA FIRST PROJECT STAGE 2

- **Site establishment for early earthworks underway**
- **Further long lead critical path packages awarded including SX, Pressure Filters, Cooling Towers and Centrifuge**
- **Construction management team in place in Gladstone**

PRODUCT MARKETING

- **Semiconductor sector engagement continues with 400kg of new orders**
- **Further Direct Lithium Extraction catalysts orders**
- **Safety benefits of Al-nitrate based UltraCoat battery process confirmed**

HPA FIRST PROJECT STAGE 1

- **HPA production exceeding design capacity at >900kg/week**
- **Stage 1 HPA production fully allocated for next two months servicing orders for:**
  - **Semiconductor sector;**
  - **Direct Lithium Extraction, and;**
  - **Sapphire glass production**

ALPHA SAPPHIRE

- **Further successful sapphire growth runs completed**
- **Further sapphire boules sent for wafer processing for:**
  - **LED end-users;**
  - **Semiconductor end-users, and;**
  - **Sapphire glass optics**

Alpha's Managing Director, Rimas Kairaitis said, "*Alpha is delighted to advise commencement of site establishment activities ahead of Stage 2 earthworks as a major Project milestone. End-user engagement across all sectors, with the semiconductor sector in particular, continues to build momentum.*"

Alpha HPA Limited (**Alpha** or **the Company**) (ASX: A4N) is pleased to provide an update on project activities for both the HPA First Project and Alpha Sapphire.

HPA FIRST PROJECT STAGE 2

Site Establishment Underway

Earthworks and civil contractors have now commenced site establishment activities, mobilising equipment and support infrastructure, and Ergon have commenced power line burial ahead of the imminent commencement of project earthworks.

Alpha's construction management team is now fully established in Gladstone.

Inspecting the Stage 2 site
(From L to R), Sanjeev Gandhi (Orica CEO), Rob Williamson (Alpha Director and COO), Chris Bowen, (Minister for Climate Change and Energy) and Rimas Kairaitis (Alpha MD)

Long lead equipment packages

The Stage 2 Project team is accelerating final process area design and have now awarded a number of long lead critical path packages, including:

- Solvent Extraction (SX)
- Pressure Filters
- Cooling Towers
- Aluminium Nitrate Centrifuge

PRODUCT MARKETING

Semiconductor and Direct Lithium Extraction (DLE) sectors

The Company is observing a significant increase in end-user engagement within the semiconductor industry, augmented with a recent marketing visit to Japan, where there is a concentration of manufacturing of high-end thermal interface materials for the semiconductor sector.

Recent engagement has generated >400kg of test sample orders for thermal interface and materials, comprising 12 separate orders, and a further two Letters of Intent (LOI's) constructed with end-users in draft.

Alpha's ability to create novel, amorphous, nanocrystalline, high purity alumina tri- hydroxides (**ATH**), continues to be of particular interest to end-users for Direct Lithium Extraction (**DLE**) catalysts.

Within the last month, Alpha has serviced or is servicing 13 separate end-user test product orders for DLE end-users. DLE counterparties range from technical service providers, global materials business to petroleum majors looking to extract lithium from oil-field brines.

Alpha is utilising capacity in both the Stage 1, Precursor Production Facility (PPF) in Gladstone, QLD and the Company's Brisbane facility to continue to deliver product test orders to end-users.

UltraCoat Safety confirmed

Flame testing has confirmed the safety benefits of the UltraCoat process, which utilises Alpha's proprietary ultra-high purity Al-Nitrate precursor to apply controlled thickness high-purity aluminium-oxide and hydroxide coatings to a range of surfaces within the Li-B cell environment.

Flame testing has now confirmed that aluminium Li-ion cell casings utilising the UltraCoat process can withstand >1000°C thermal runaway conditions for >9minutes, when compared to <15 seconds on uncoated aluminium cell casings. Alpha has successfully filed a provisional patent for the UltraCoat process.

Alpha is currently engaged with >15 anode developers, battery makers and cell casing manufacturers to qualify the UltraCoat process.

UNCOATED ALUMINIUM
15 seconds under butane flame

ULTRA-COATED ALUMINIUM
Layer integrity intact after 9 minutes under butane flame

UltraCoat can be applied to chemically coat:

- Li-ion battery anode and cathode active materials
- Li-ion battery cell casings
- Li-ion electrode sheets

The wider regulatory and EV manufacturer focus on Li-ion battery fire prevention is considered strongly favourable for the accelerated testing, and adoption of this Alpha's UltraCoat technology. Alpha's commercial scale aluminium nitrate production is currently under expansion with Stage 2, which will support increased production of the UltraCoat technology.

HPA FIRST PROJECT - STAGE 1

Stage 1 operations remain focussed on servicing customer qualification test orders and sales orders for:

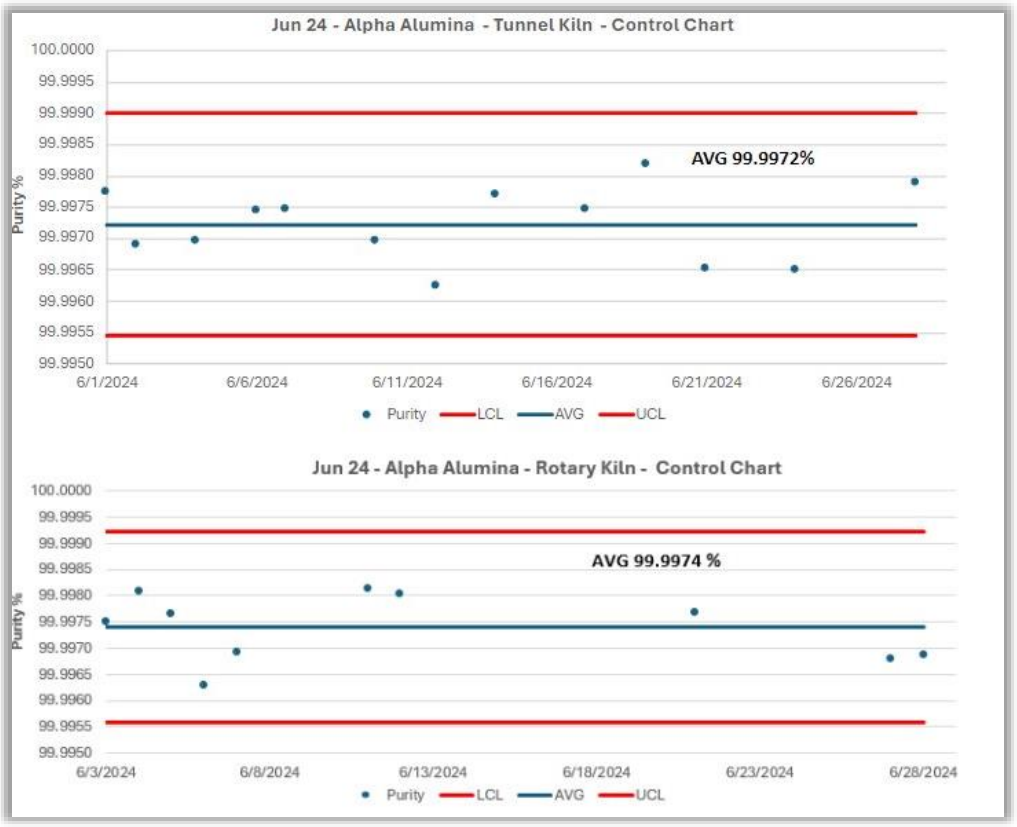
- Alpha and gamma phase HPA
- Sintered HPA tablets
- Nano-HPA
- High purity alumina hydrates (boehmite (Al-O-OH) and 'ATH' (or $Al(OH)_3$); and
- Aluminium nitrate (Al-Nitrate)

Current Stage 1 HPA production is now fully allocated for the next two months servicing orders for:

- Semiconductor sector
- DLE; and
- Sapphire glass production

The HPA and alumina hydrate circuits are now in stable operations, with HPA production levels now exceeding design capacity and reaching >900kg per week and alumina hydrate production reaching >100kg (wet cake) per day. Ongoing process refinements and de-bottlenecking continue to optimise product throughput.

Production of all materials continues to maintain exceptional purity levels in excess of 99.995% (see below):



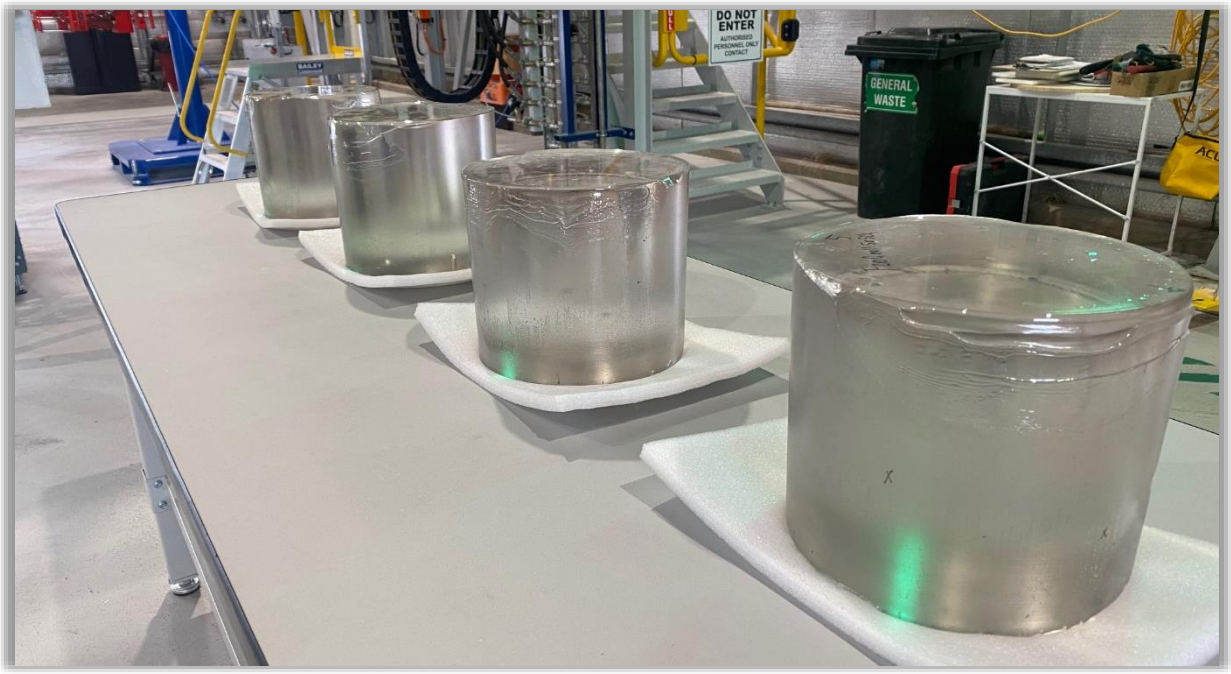
HPA production Stage 1, June 2024 purity trends averaging 99.997%

Completed HPA order ready for shipment

ALPHA SAPPHIRE

Alpha has maintained successful growth cycles of high-quality synthetic sapphire boules from the initial 2 (Phase A) sapphire growth units in Gladstone.

Additional sapphire boules have now been despatched for processing to synthetic sapphire wafers to service qualification enquiries for LED, semiconductor and sapphire optics end-users.



Raw, single crystal sapphire boules generated from most recent production run (6 August, 2024)

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About the HPA First Project

The Company's HPA First Project represents the commercialisation of the production of high purity aluminium materials using the Company's proprietary, exclusively licensed 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) and 5N (>99.999% purity) aluminium materials for sale into high technology markets including the semiconductor, lithium-ion battery and LED lighting sectors.

Alpha is in production at its HPA First Project Stage 1, Precursor Production Facility (PPF) across the Company's full range of high purity aluminium materials and has commenced construction of Stage 2 of the HPA First Project.

On 20 May 2024, Alpha released a final Definitive Feasibility Study and FID for Stage 2 of the HPA First Project, being the full commercial scale deployment of the process technology on the same site.