

The Manager Companies - ASX Limited
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ASX Announcement
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(4 pages)

ALPHA SAPPHIRE UPDATE



Alpha **SAPPHIRE**

- **Installation of Phase A sapphire growth utilities complete**
- **Assembly of first sapphire units commenced**
- **Sapphire growth in Austria from Alpha feedstock confirms 5N purity**

Alpha HPA Limited (**Alpha** or **the Company**) (ASX: A4N) is pleased to provide an update on project activities for **Alpha Sapphire**. Alpha Sapphire is a wholly owned subsidiary of Alpha, established to commercialise the first and only synthetic sapphire growth capability in Australia utilising the Ebner-Fametec sapphire growth technology and Alpha's high purity alumina feedstock.

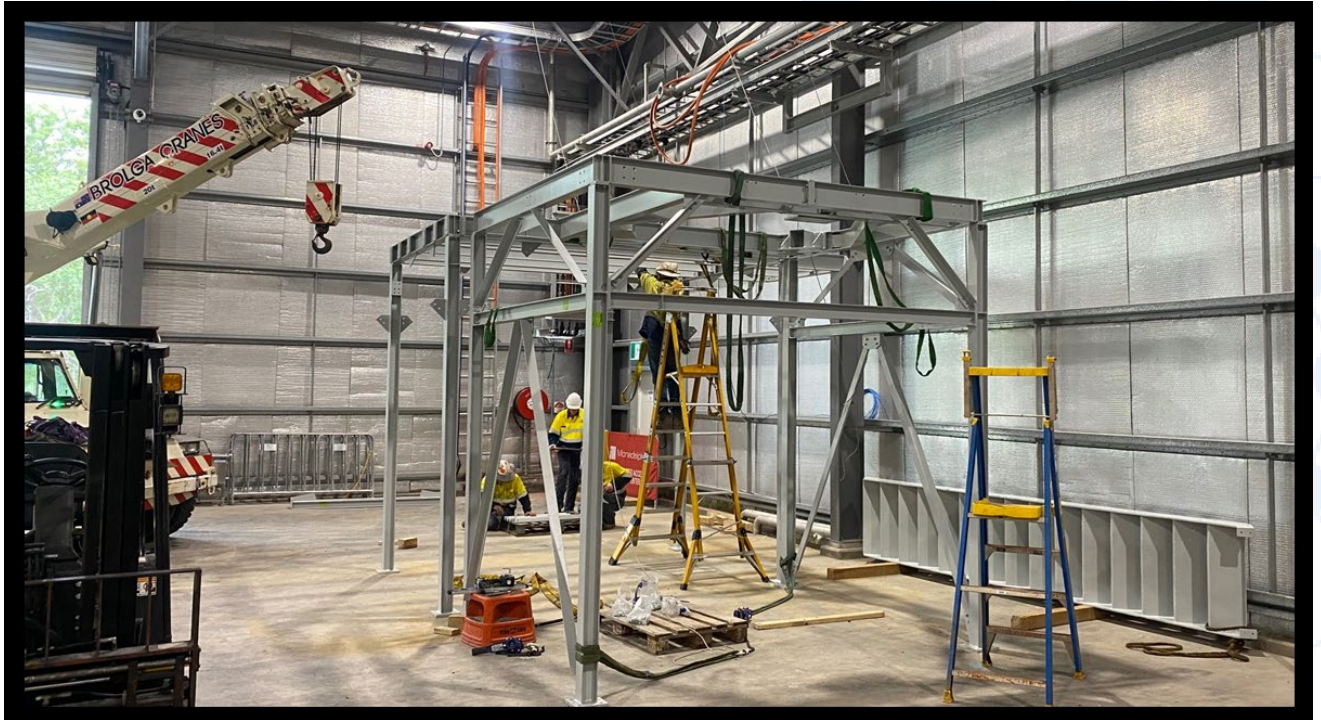
Alpha is pleased to advise that the support infrastructure and utilities for the first two synthetic sapphire growth units (**Phase A**) is complete and ready for commissioning at the Company's HPA facility in Gladstone, QLD.

The synthetic sapphire framing and furnace bodies have also arrived on site, with installation now underway.



*Support infrastructure for the synthetic sapphire growth units installed.
Inert gas utilities (LHS) and water cooling tower (RHS)*





Installation of sapphire growth unit framework commences

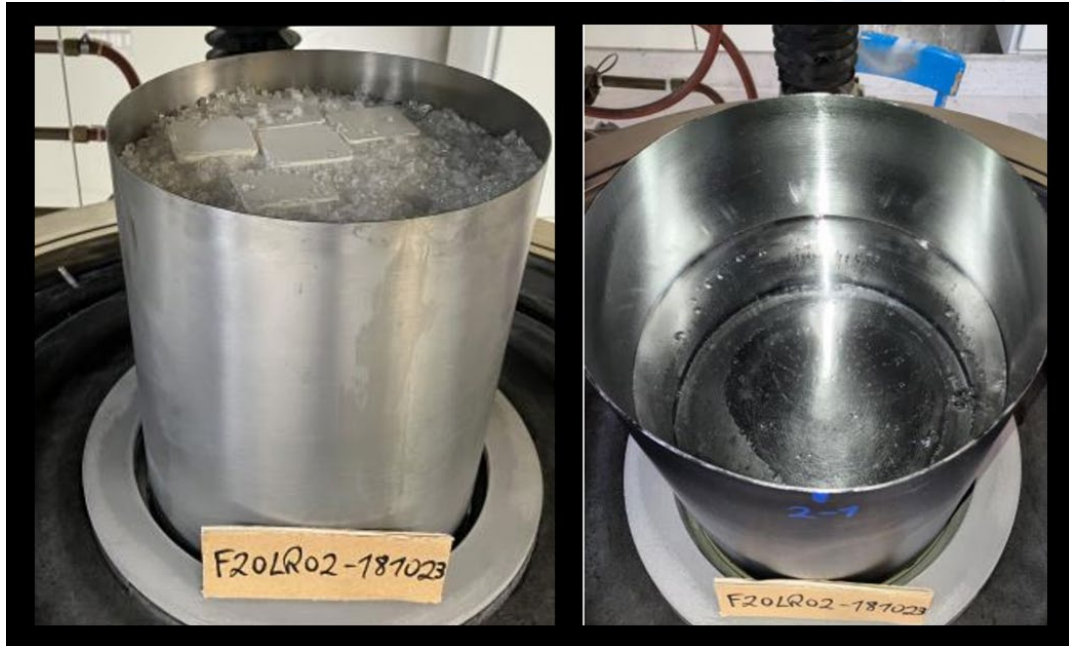


Sapphire grower shells, delivered and ready for installation

In addition, Ebner-Fametec have confirmed that the most recent batch of crystal growth in Austrian based sapphire growth units (as reported to the ASX: 27 November 2023) has assayed as >5N (99.999%) purity by GDMS analysis.

This is a strongly encouraging result, combined with the sapphire crystal's good colour and low imperfections.

Alpha has now provided Ebner-Fametec with follow on feedstock supply of 'pizza piece' shaped sintered tablets for multiple (5 x 30kg) sapphire boule growth which is now underway.



*Pre-melt crucible packed with Alpha HPA tablets (LHS). Completed, single crystal sapphire boule (RHS).
(scale approx. 20cm diameter)*

Site selection for Phases B and C

Alpha has short listed a handful of properties as potentially suitable locations for the Alpha Sapphire expansions, being:

- **Phase B** (48 additional sapphire units) and
- **Phase C** (50 additional sapphire units).

Live discussions with power distribution networks are ongoing to ensure ability to supply total power connection requirements for both phases with formal enquiries in progress. Alpha continues to progress renewable power discussions with relevant energy providers in Queensland.

The engineering team are progressing site layouts in parallel with site selection to ensure proper fit and operability which will include feed preparations, sapphire growing and sapphire boule mapping and processing within the facility.

Alpha's Managing Director, Rimantas Kairaitis said, "We are very pleased with the progress of the Alpha Sapphire business as we progress to manufacture our first synthetic sapphire in Australia, the first exciting step to establishing the sovereign, high value downstream sapphire capacity to supply key high technology markets.

We are focussed on capturing this unique opportunity with funding in place to scale rapidly into sapphire growth to meet the expected demand from the adoption mini-LED and micro-LED displays and the ability to supply sapphire sourced from a secure jurisdiction, grown with renewable power and fed with our own low-carbon HPA feedstock."

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About Alpha Sapphire

Alpha Sapphire is a 100% owned Alpha HPA subsidiary dedicated to the commercialisation of the growth, processing and sale of high value synthetic sapphire glass utilising Alpha's high purity alumina feedstock.

Synthetic sapphire glass is the pure crystalline form of high purity alumina, or Al_2O_3 , grown under controlled conditions as a single monolithic crystal. Synthetic sapphire glass has unique physical properties related to its purity, crystal matrix and hardness, that makes it a critical, high value input into LED lighting substrates and various optical applications including consumer electronics, medical application and defence.

In March 2023, Alpha entered agreements with Austria based technology provider Ebner-Fametec, to provide for the staged entry by Alpha into the production and sale of synthetic sapphire glass utilising Ebner-Fametec sapphire growth technology and utilising Alpha's custom HPA tablets as feedstock.

Alpha has a Letter of Intent (LOI) with Ebner-Fametec to purchase and roll-out sapphire growth units in the following phases:

- **Phase A:** Purchase and installation of an initial 2 synthetic sapphire growth units: **Now Underway**
- **Phase B:** Purchase and installation of a further 48 synthetic sapphire growth units: **Total 50**
- **Phase C:** Purchase and installation of a further 50 synthetic sapphire growth units: **Total 100**

In June 2023, the agreement between Alpha and Ebner-Fametec was expanded to include a LOI to work co-operatively on sapphire marketing and to target an additional, large-scale expansion of the Australia based sapphire growth installation, to be referred to as the '**Nova Phase**'. The Nova Phase will contemplate the purchase, construction, installation and operation of up to an additional 1,000 synthetic sapphire growth units.

Alpha Sapphire has secured up to \$30 million project funding from Queensland Critical Minerals and Battery Technology Fund (QCMBTF) and has secured matching equity funding from a strategic placement in November 2023.

Alpha has undertaken a detailed assessment of the business opportunity presented by synthetic sapphire growth. This includes direct engagement with end-users in both the LED and sapphire optics markets and includes detailed price discovery with respect to expected pricing and processing costs.

Alpha considers the financial opportunity for sapphire glass growth to be robust, driven by:

- Highly favourable market supply and demand dynamics
- The higher utilisation of sapphire using the Ebner-Fametec sapphire growth technology.
- The more efficient use of energy in the Ebner-Fametec sapphire growth technology.
- The available price of renewable electrical energy.

Based on a range of scenario splits between sales to the Optics and LED end markets, Alpha has modelled EBITDA returns of between US\$500K to US\$690Kpa per sapphire growth unit.