13
Al
Aluminium
26.982

Alpha HPA

ASX: A4N

AGM PRESENTATION – NOVEMBER 2025

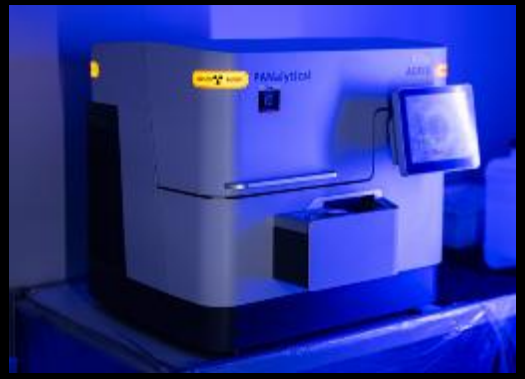
CAUTIONARY STATEMENT

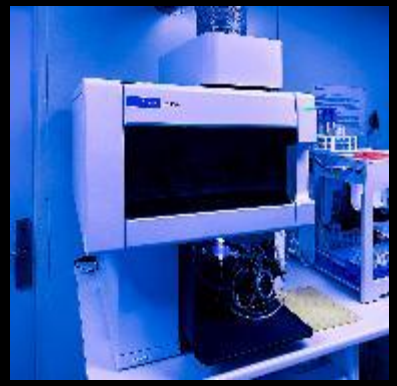
The Definitive Feasibility Study (DFS) referred to in this Presentation has been undertaken to assess the technical and financial viability of the HPA First project. The DFS is based on the material assumptions about the availability of funding and the pricing received for Alpha. While the Company considers 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 outcomes indicated by this DFS will be achieved. To achieve the range of outcomes indicated in the DFS, additional funding will 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 HPA First project. If it does, this could materially reduce the Company's proportionate ownership of the HPA First project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the DFS.

FORWARD LOOKING STATEMENTS

This presentation contains certain forward-looking statements with respect to the DFS, financial condition, results of operations, and business of the Company and certain plans and objectives of the management of the Company that are based on the Company's assumptions, expectations, estimates and projections as of the date on which the statements were made. Generally, forward-looking statements can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely',' believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. 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. Although the Company attempts and has attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements or events not to be as anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Investors should consider the forward looking statements light of those disclosures and are cautioned not to place undue reliance on forward looking statements. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.



ALPHA HPA: INTRODUCTION

A technology led, specialty chemicals company

Manufacturing **ultra-high purity aluminium products** with a world first process which are:

CRITICAL RAW MATERIALS FOR HIGH-TECHNOLOGY GROWTH SECTORS

HIGH PURITY - HIGH MARGIN – HIGH VALUE

Commercialising in 2 Stages as the

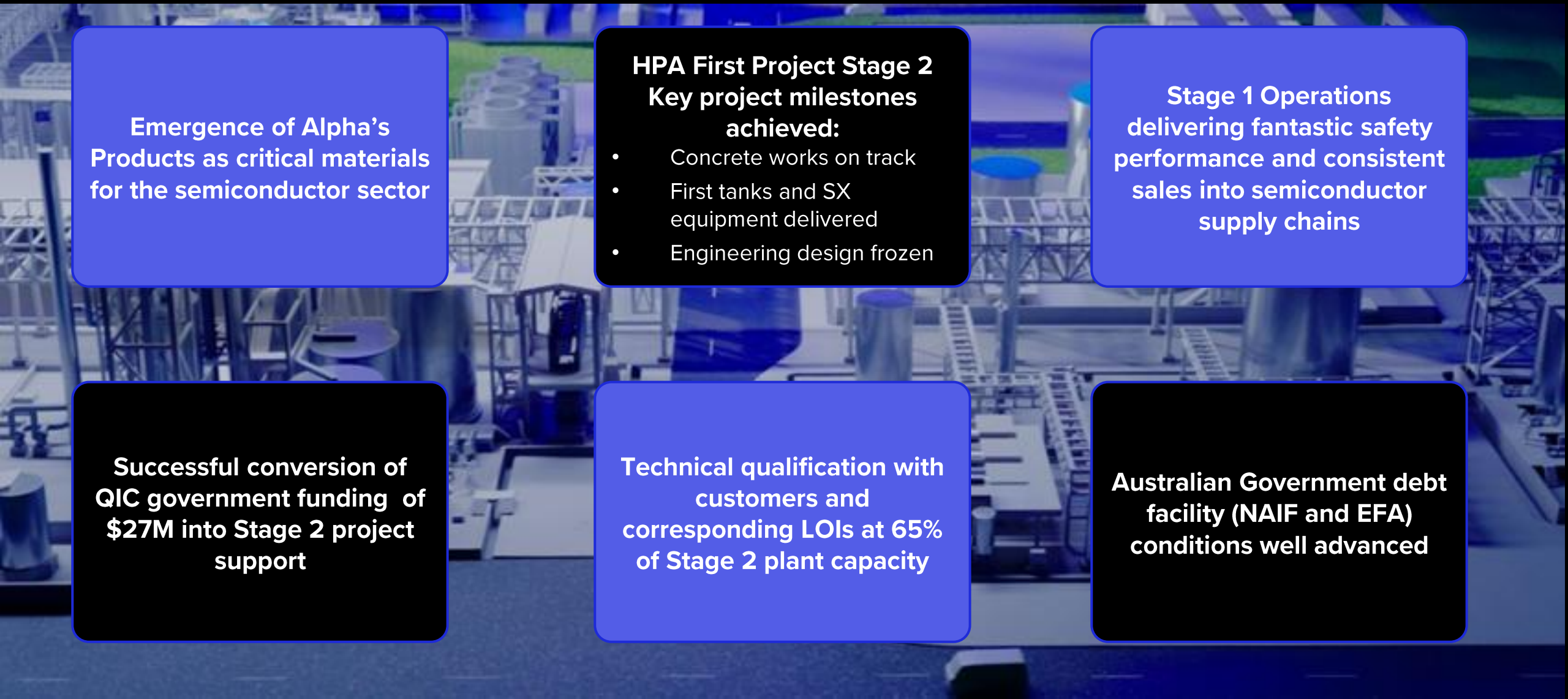
HPA FIRST PROJECT

STAGE 1 – IN PRODUCTION

STAGE 2 – IN CONSTRUCTION

AlphaHPA

2025 HIGHLIGHTS



Emergence of Alpha's Products as critical materials for the semiconductor sector

HPA First Project Stage 2 Key project milestones achieved:

- Concrete works on track
- First tanks and SX equipment delivered
- Engineering design frozen

Stage 1 Operations delivering fantastic safety performance and consistent sales into semiconductor supply chains

Successful conversion of QIC government funding of $27M into Stage 2 project support

Technical qualification with customers and corresponding LOIs at 65% of Stage 2 plant capacity

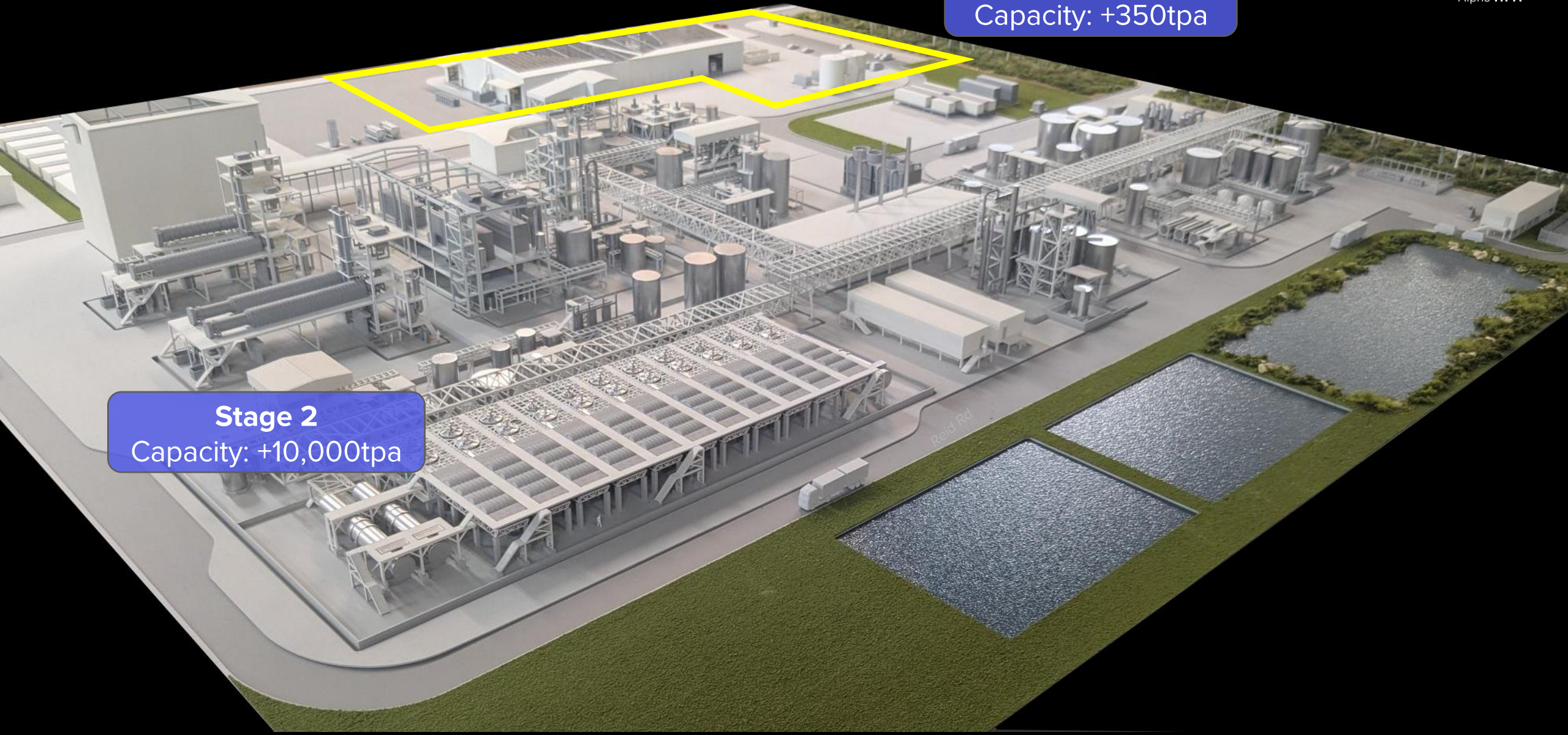
Australian Government debt facility (NAIF and EFA) conditions well advanced

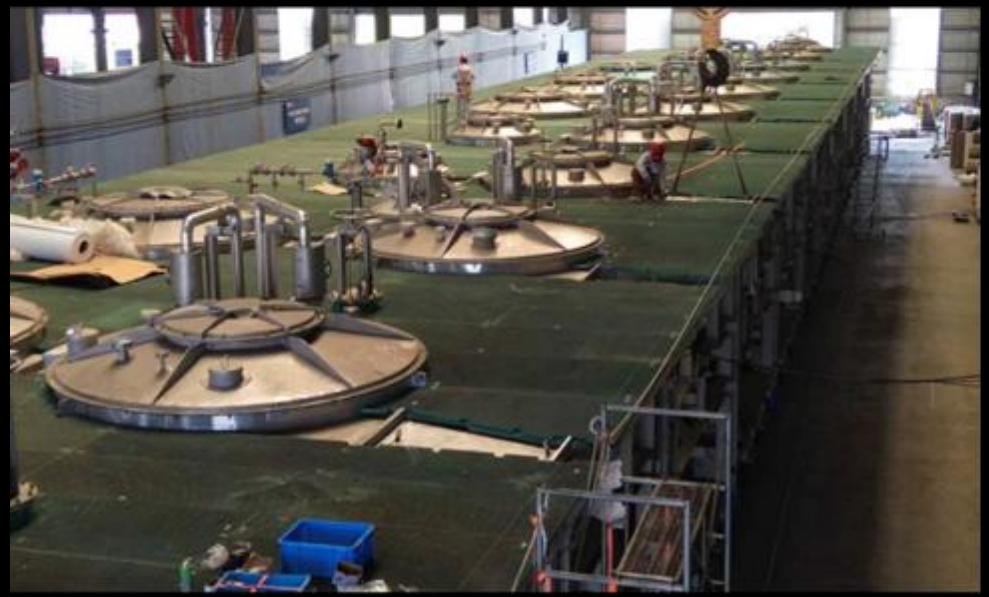
STAGE 1: PRODUCTION **STAGE 2: CONSTRUCTION**

AlphaHPA

MANUFACTURING FACILITIES LAYOUT:

Alpha HPA





STAGE 2 : IN CONSTRUCTION

Alpha HPA

STAGE 2 : DEDICATED VESSEL SX AND TANKS DELIVERY

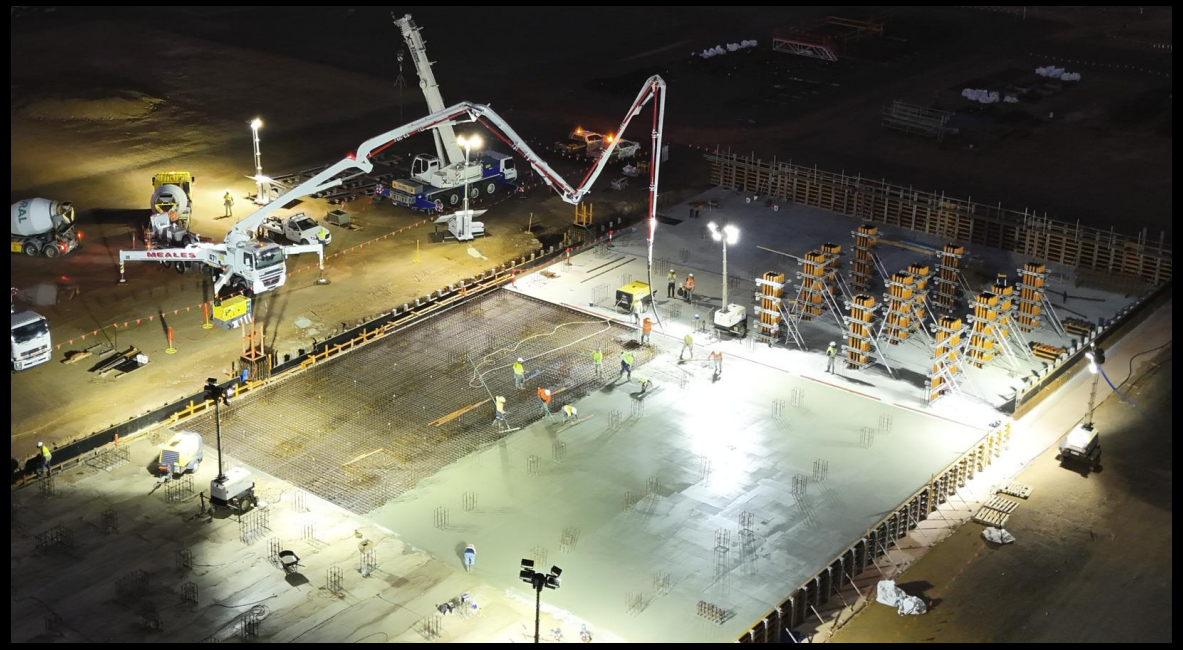
Alpha HPA

STAGE 2 : CONSTRUCTION IMAGES

Alpha HPA

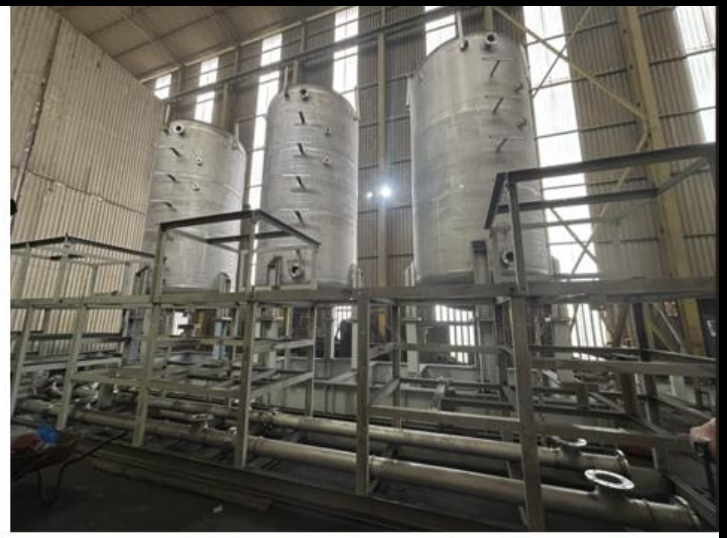
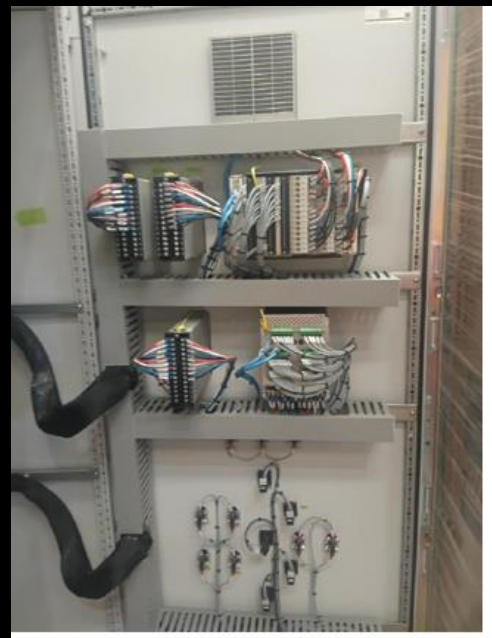
STAGE 2 : CONSTRUCTION IMAGES

Alpha HPA



STAGE 2 : CONSTRUCTION IMAGES

Alpha HPA




STAGE 2 : CONSTRUCTION IMAGES

Alpha HPA

STAGE 1 FACILITY: PRODUCTION, SALES AND QUALIFICATION

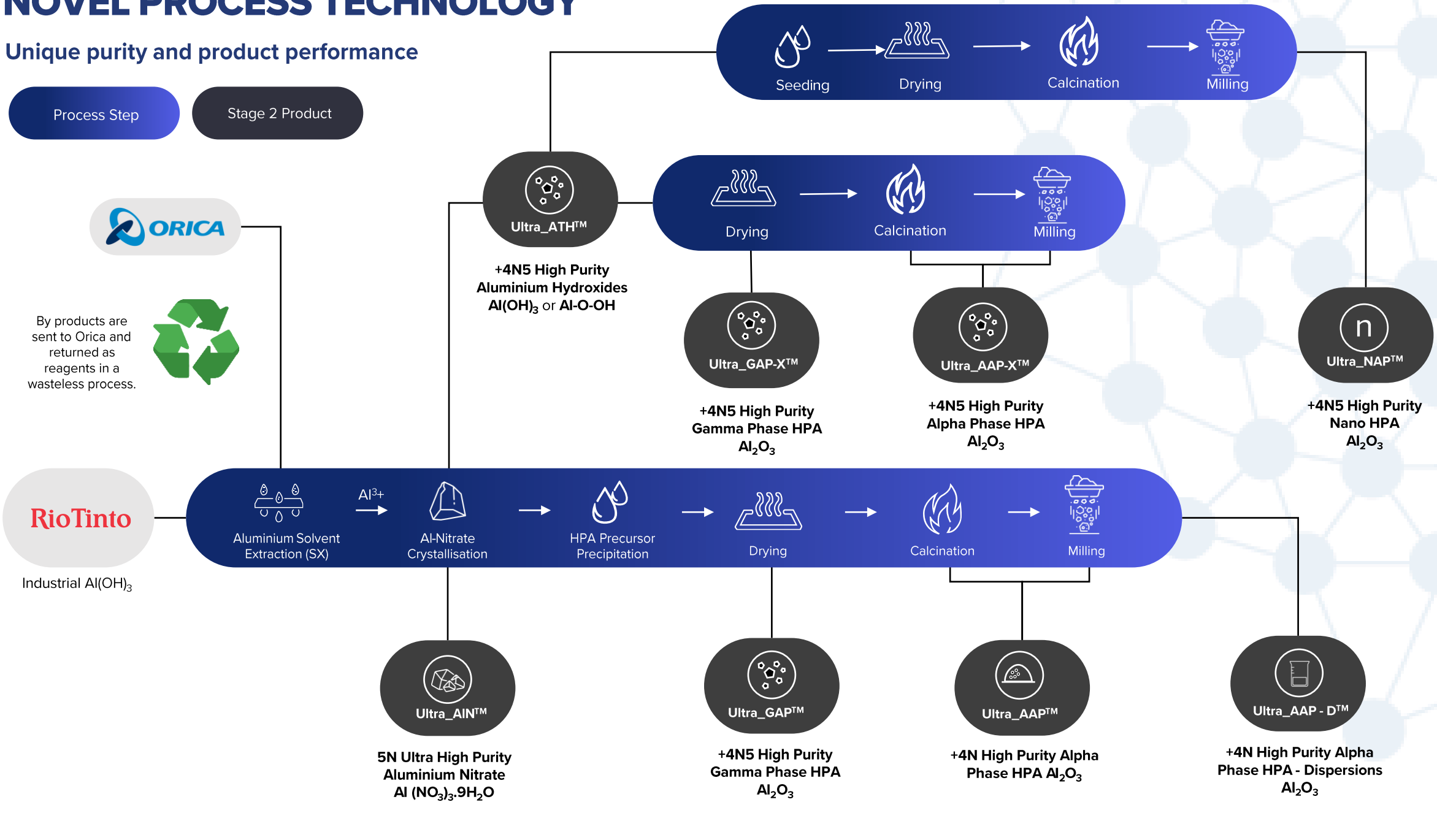
Alpha HPA

NOVEL PROCESS TECHNOLOGY

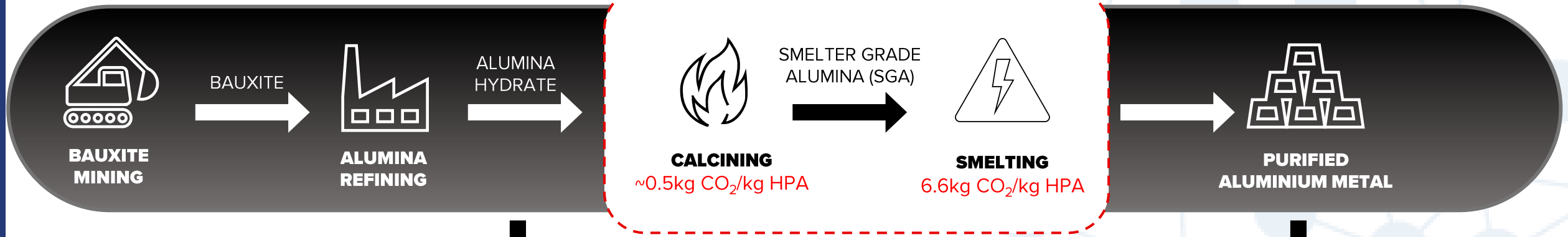
Unique purity and product performance

Process Step

Stage 2 Product



ALPHA HPA vs INCUMBENT PROCESS



$Al(OH)_3$

FEEDSTOCK ENERGY SAVING
= 7.1kg CO_2/kg HPA

NOVEL PURIFICATION AND REFINING PROCESS

5.0kg* CO_2/kg HPA

WIDE RANGE OF ULTRA PURE ALUMINAS (>99.995%)

UNIT COST = US$6.7/kg HPA**

INCUMBENT ALKOXIDE PROCESS

17.3kg CO_2/kg HPA

NARROW RANGE OF PURE ALUMINAS (>99.95%)

UNIT COST = US$12-15/kg HPA***

* Using renewable energy

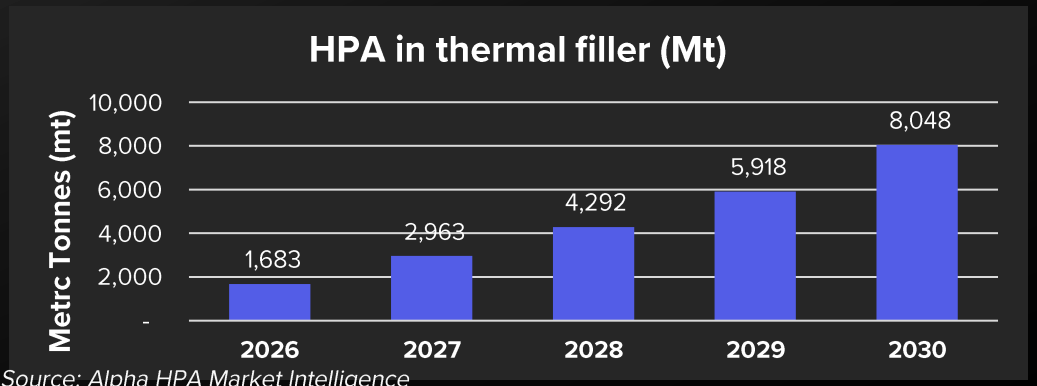
**Alpha HPA – DFS, May 2024

***CRU Jan 2022

WORLD LEADING 'LOW-ALPHA' ALUMINA MATERIALS

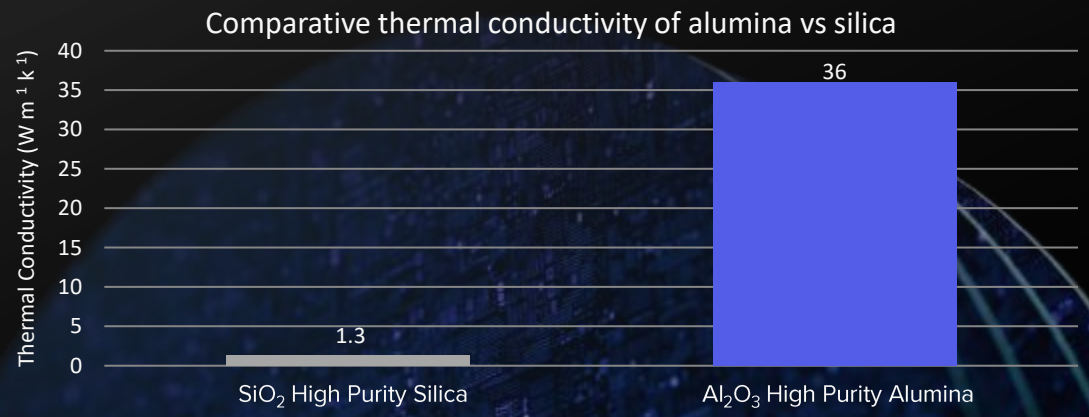
- Electricity demand for AI data centres is surging, with ***40% of electricity for cooling***
- Intensive focus on improved thermal management for greater computing power
- Driving adoption of high purity alumina for heat dissipation

CONDUCTING HEAT FROM AI CHIPS IN DATA CENTRES IS DRIVING MATERIAL VOLUME REQUIREMENT FOR ZERO ALPHA HPA

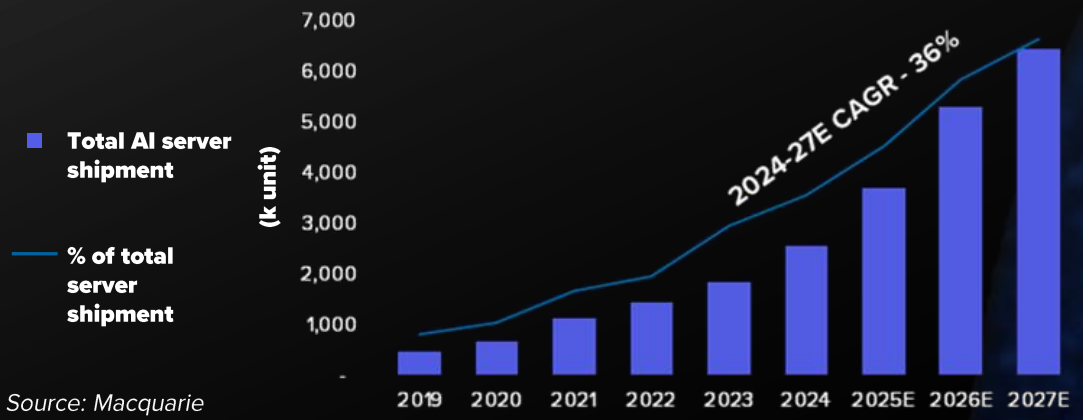


Source: Alpha HPA Market Intelligence

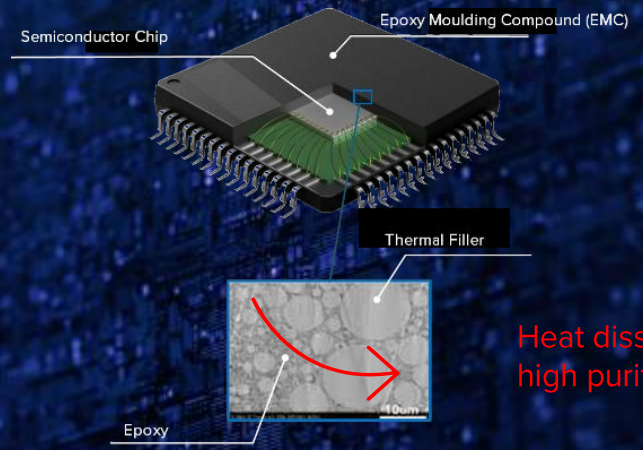
ALUMINA IS A ~30X BETTER THERMAL CONDUCTOR THAN SILICA



ARTIFICIAL INTELLIGENCE (AI) SERVER DEMAND SURGING



Source: Macquarie

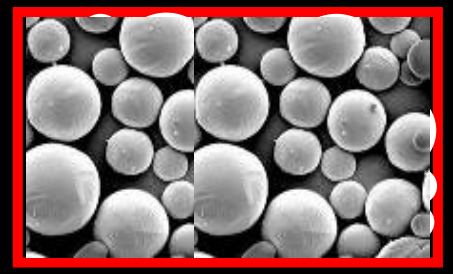


Heat dissipation via high purity alumina fillers

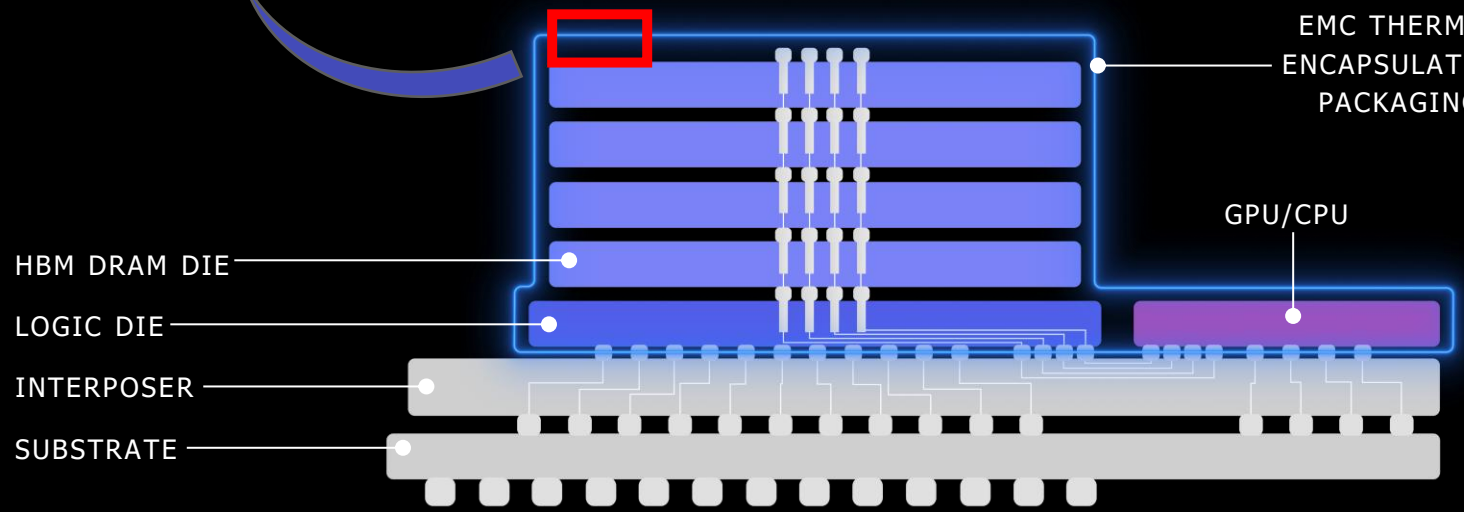
‘LOW ALPHA' FILLERS USE-CASE: TYPICAL EXAMPLE

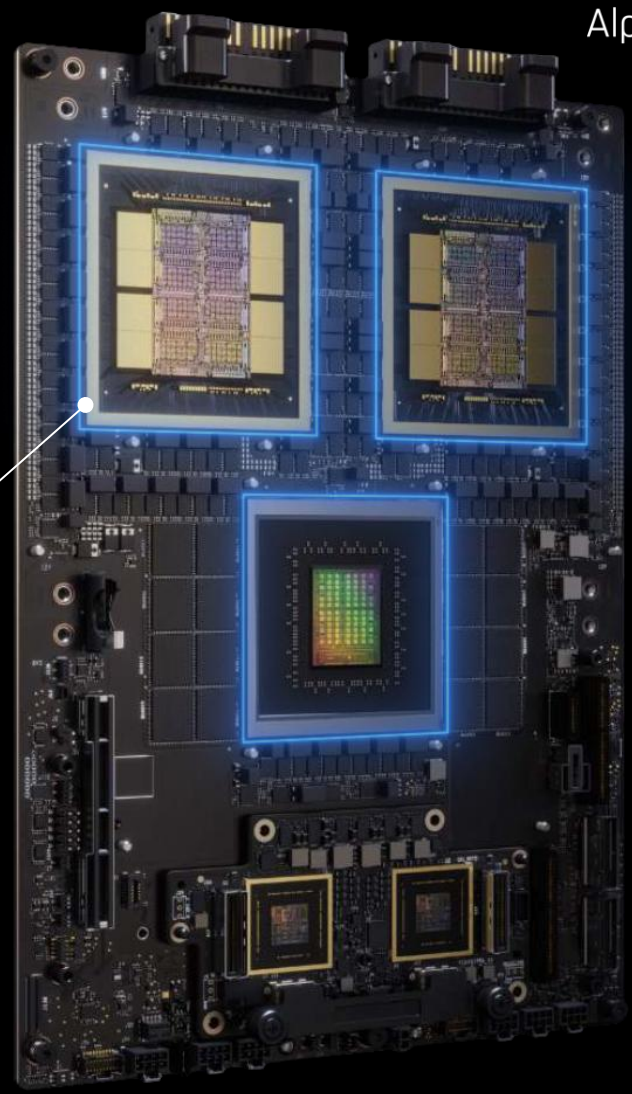
Alpha HPA

High purity alumina (HPA) thermal fillers provide the heat transfer of the EMC for chip package encapsulation. Low alpha radiation HPA filler is critical for AI chip reliability and performance.



Heat dissipation via
high purity alumina fillers



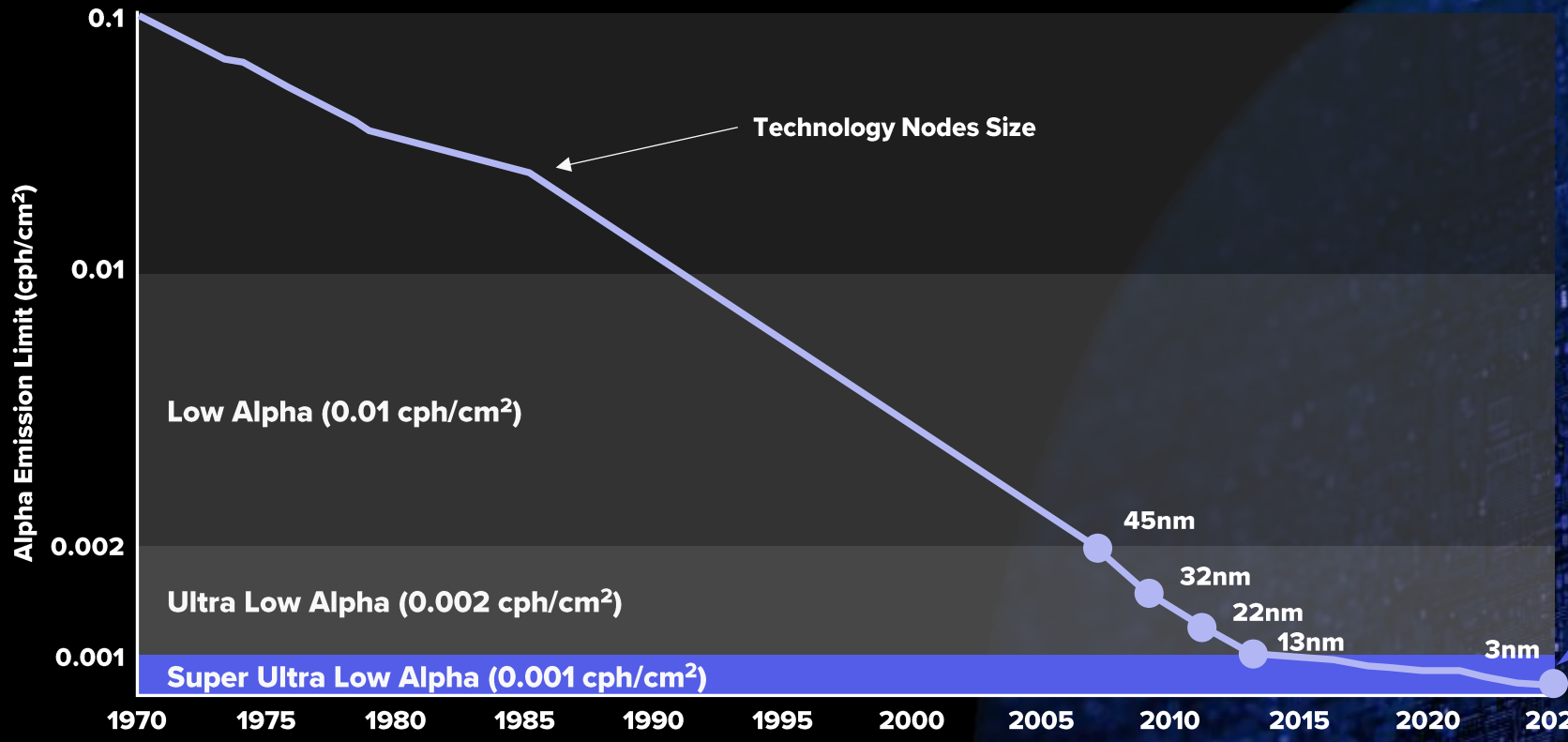


TYPICAL A.I. GPU

ONLY GLOBAL PRODUCER OF ‘ZERO-ALPHA’ ALUMINAS FOR AI DATA CENTRES

WORLD LEADING ‘LOW-ALPHA’ ALUMINA MATERIALS

- As semiconductor nodes continue to reduce, ‘low-alpha’ emission alumina materials are becoming critical
- Increasingly adopted for thermal fillers and for ‘*wafer adjacent*’ ceramic parts in manufacturing equipment
- Emission of alpha radiation particles cause ‘bit-flips’ and soft errors
- Unique purification process removes all detectable levels of Uranium and Thorium
- **Alpha’s customers have confirmed that Alpha HPA is the only supplier to meet non-detect levels of alpha- radiation**
- Alpha HPA is uniquely positioned to meet rapid growth in low-alpha alumina demand. With >1,000tpa under LOI



Alpha HPA provides the lowest level alpha radiation in alumina materials (non-detect) globally

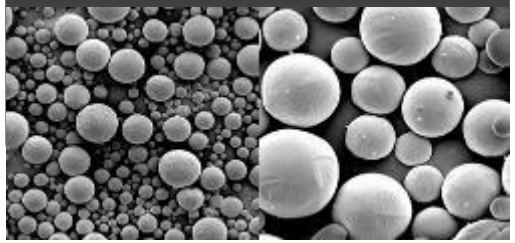
Source: Honeywell Advanced Materials

OUR POSITION IN THE SUPPLY CHAIN
'LOW-ALPHA' ALUMINA MATERIALS

'low alpha' precursors
$Al(OH)_3$ & Al_2O_3

Alpha HPA

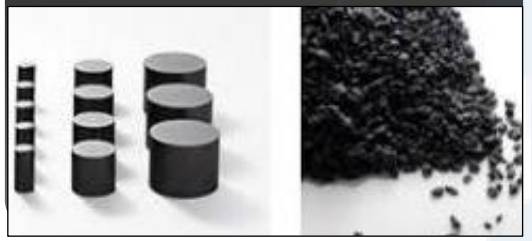
'low alpha' spherical alumina manufacturers



'low alpha' alumina component OEM's

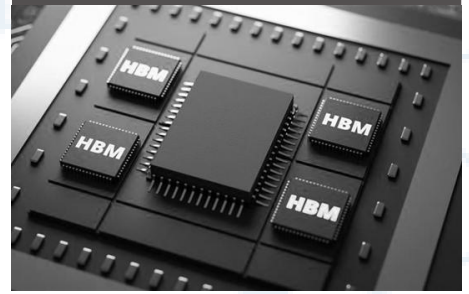
Alpha's Customers

Advanced packaging OEM (EMC/MUF/DAF* etc)



Semiconductor equipment manufacturers

Semiconductor IDM's & Foundries



* EMC = Epoxy Molding Compound
*DAF = Die Attach Film
*MUF = Molding and Underfill

CUSTOMER CASE STUDIES
'LOW-ALPHA' ALUMINA MATERIALS

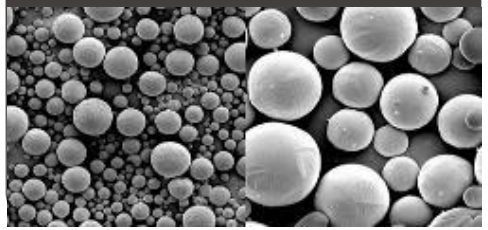
'low alpha' precursors
$Al(OH)_3$ & Al_2O_3

Alpha HPA

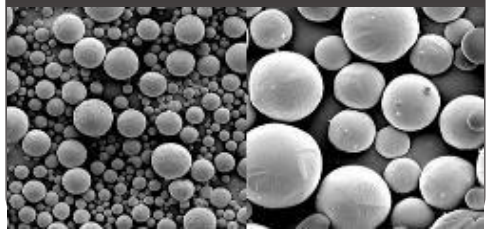
'low alpha' precursors
γ-Al_2O_3

Alpha HPA

Spherical alumina OEM
- 18 month qualification
- Sales commenced
- LOI +100tpa



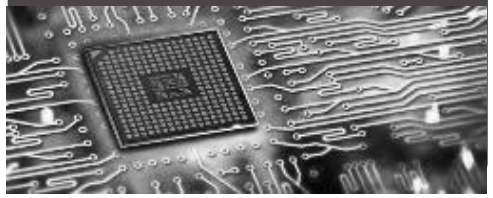
Spherical alumina OEM
- 18 month qualification
- Sales commenced
- LOI up to 1,000tpa



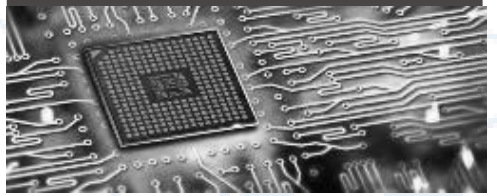
Alpha's Customers

EMC* OEM

Semiconductor IDM**



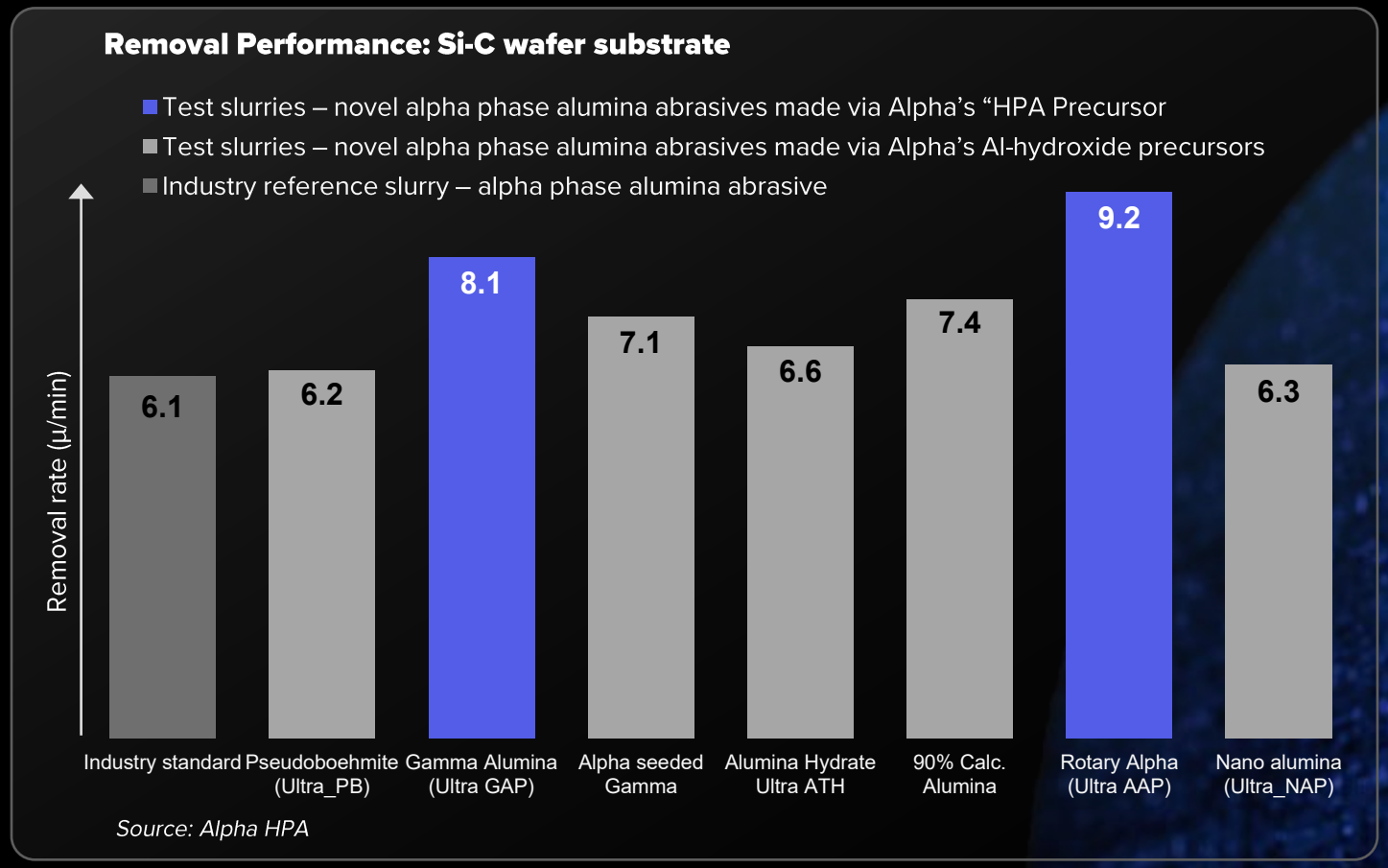
Semiconductor Foundry

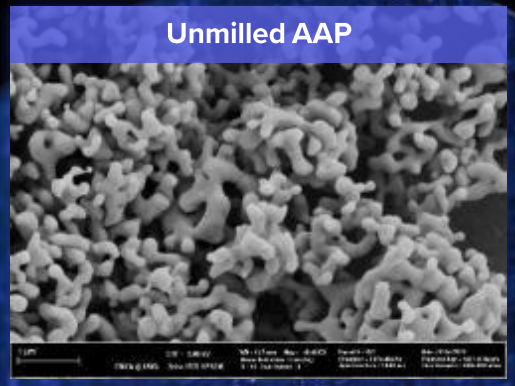


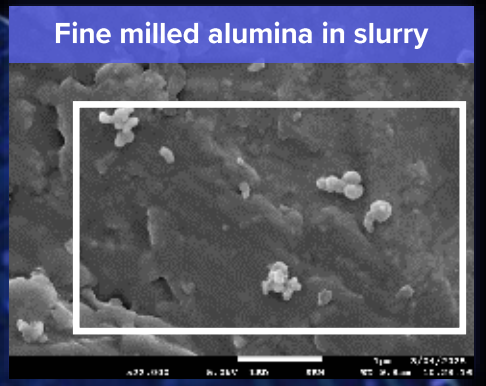
* EMC = Epoxy Molding Compound
** Semiconductor OEM with integrated EMC

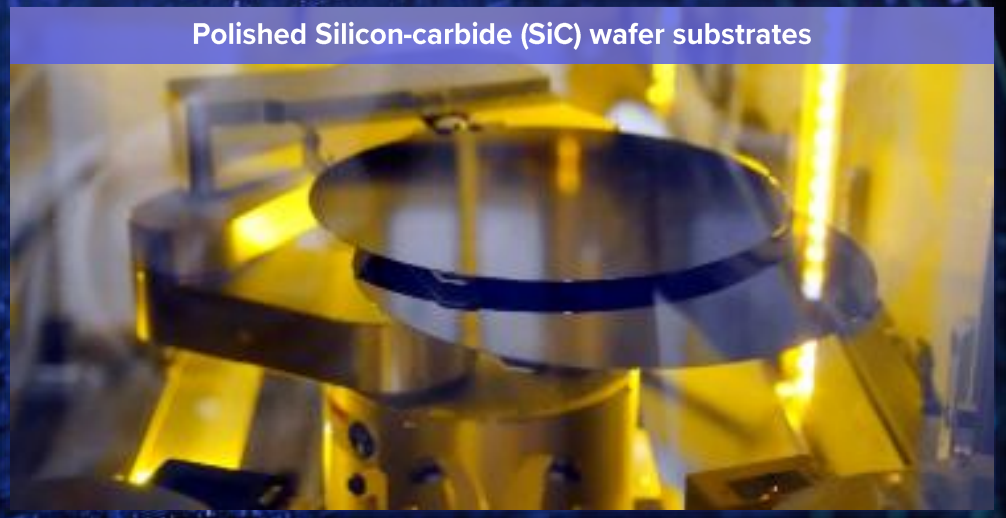
NEW PROCESS = NOVEL HPA PARTICLES = OUTPERFORMANCE IN CMP

- Alpha HPA's novel high purity alumina particle can deliver outperformance in Chemical, Mechanical Planarization (CMP), particularly for hard substrates and new thin-films, including Silicon Carbide (SiC), hard-carbon, metal and high selectivity dielectric layers
- **Up to 50% higher removal rates + very high selectivity**
- Alpha has commenced small scale commercial sales to leading CMP end-users in the US and Asia and is in advanced qualification with end-users in Japan, China and the US including a recent Letter of Intent for up to 4,000 metric tpa









OUR POSITION IN THE SUPPLY CHAIN

CMP

High-purity alumina
α-Al_2O_3 (powder or slurry)

Alpha HPA

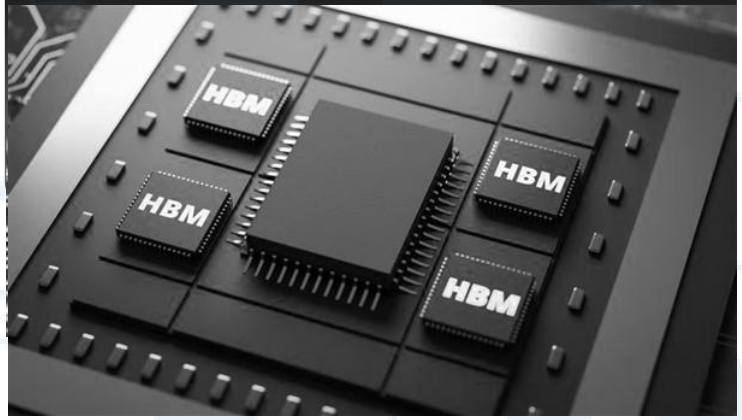
'low alpha' precursors
γ-Al_2O_3

Alpha HPA

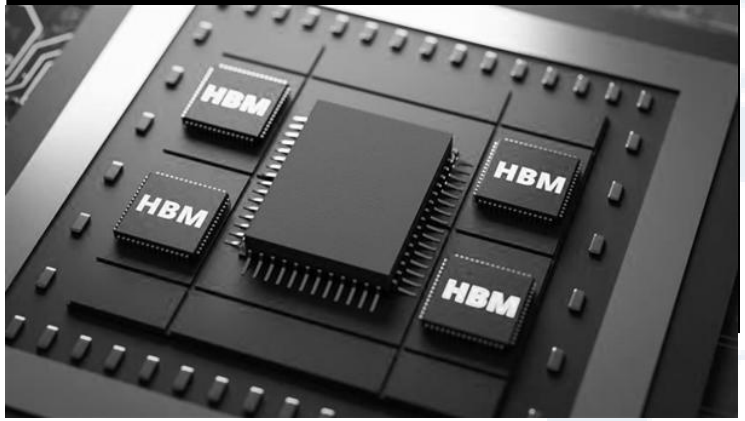
CMP slurry manufacturers

Alpha's Customers

Semiconductor OEM's



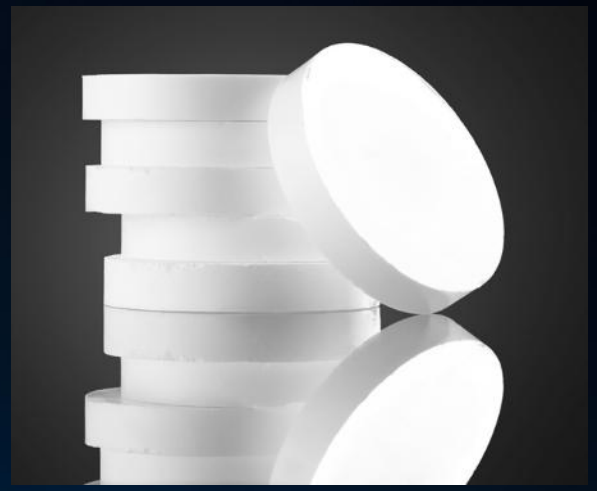
Semiconductor Foundries



ALPHA SAPPHIRE: GaN ON SAPPHIRE POWER SEMIS

- GaN-on-Sapphire requires wide-format (8”), C-plane wafers
- Ideally suited to Alpha’s investment in next generation wide-format growth technology

Alpha SAPPHIRE



Alpha HPA Ultra Pucks

Alpha’s Sapphire Growers

Complete C-Axis Sapphire Boule

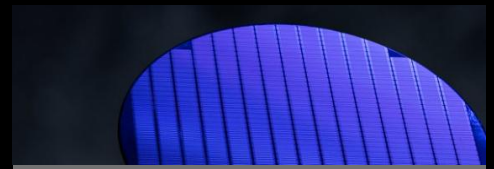
Sapphire Wafer

- Qualification Underway: "8" sapphire wafers being delivered to global tier #1 OEM
- Specifications agreed with 2 x additional OEM’s

Alpha HPA

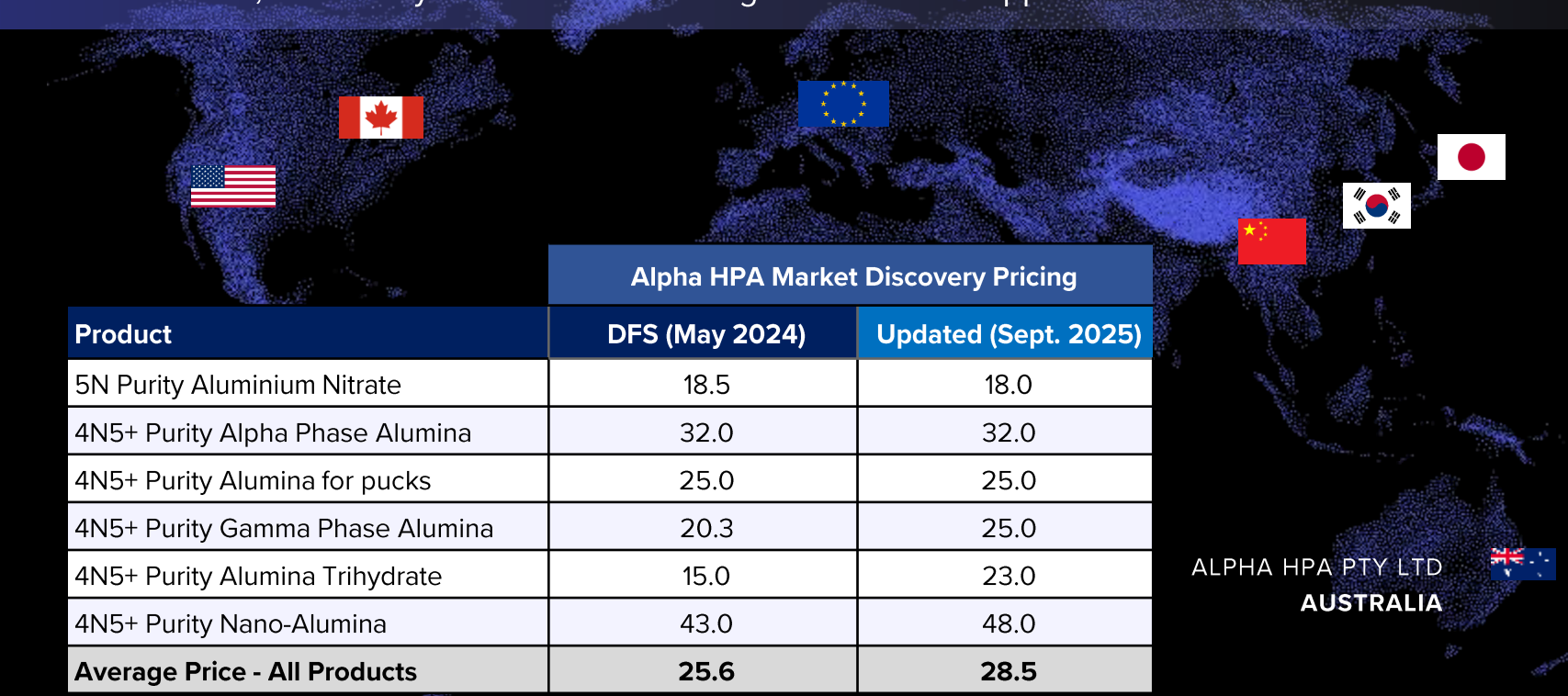
WHERE ALPHA HOLDS A CLEAR TECHNICAL ADVANTAGE

Alpha HPA

SECTOR	SEMICONDUCTOR		DLE	LITHIUM-ION BATTERY
USE	 THERMAL FILLERS	 CMP	 DLE SORBENTS	 COATINGS
PRODUCTS	Alumina and ATH materials as spherical 'heat sinks' to manage temperature in high performance parallel processors	Alumina abrasives for polishing silicon carbide substrates (Si-C) and package polishing 5N Al-Nitrate additive	ATH ($Al(OH)_3$) as a precursor to make DLE sorbents for extracting lithium from brines	High purity Al-Nitrate as coating precursor to apply Al-based coating on anode materials
A4N ADVANTAGE	End-users have noted Alpha is the only global supplier capable of providing <1ppb U and Th materials for 'low-alpha' thermal interface fillers	Novel process delivers ultra low alkali metals impurities (Na & K) and morphology driving out-performance as a CMP abrasive	Novel process delivers unique amorphous ATH crystal structure = ultra-high performance	Alpha HPA is the first company globally to manufacture 5N purity aluminium nitrate MAJOR SAFETY BENEFIT
ALLOCATION	1,100tpa under LOI (2 OEM's) 2 x LOI's in draft Qualifying with 6 x other Premium pricing ~ US$25 – 35/kg **Est. unmet demand: +5ktpa**	4,000tpa under LOI Small scale sales commenced Qualifying for 10 x other Strong pricing ~US$20-30/kg **Est. unmet demand: 10kt**	LOI in draft Qualifying with 14 x counterparties Moderate pricing **Est unmet demand: +25ktpa**	Qualified with a sector leader 2 x LOI + quotation in draft Moderate pricing (strong in HPA Eq) **Est unmet demand: +10ktpa**

GLOBAL MARKETING

- Extensive agent and advisory network
- Detailed, technically driven understanding of market and applications



	Alpha HPA Market Discovery Pricing	
Product	**DFS (May 2024)**	**Updated (Sept. 2025)**
5N Purity Aluminium Nitrate	18.5	18.0
4N5+ Purity Alpha Phase Alumina	32.0	32.0
4N5+ Purity Alumina for pucks	25.0	25.0
4N5+ Purity Gamma Phase Alumina	20.3	25.0
4N5+ Purity Alumina Trihydrate	15.0	23.0
4N5+ Purity Nano-Alumina	43.0	48.0
Average Price - All Products	**25.6**	**28.5**

ALPHA HPA PTY LTD
AUSTRALIA

SALES AGENTS & INTERMEDIARIES

AUSTMIN
CHINA

APL MATERIALS
JAPAN

AM&M
NORTH EAST ASIA

TECHNOLOGICA
EU

PENLAN CHEMICALS
CANADA

PENLAN CHEMICALS
AMERICA

SECTOR ADVISORY & INTERMEDIARIES

SEMICONDUCTOR & LED
- ARKESSO LLC
- YOLE

EV & LI-ION BATTERY
- ALTO GROUP
- ELECTRIOS
- P3 GROUP

AUST. BASED MARKETING TEAM

- FULL TECHNICAL SUPPORT FOR CUSTOMERS
- 8 MEMBER PRODUCT DEVELOPMENT TEAM
- DIGITAL MARKETING TEAM
- SEO WEBSITE INQUIRIES & SALES

Alpha HPA

STAGE 2 DFS: STRONG FINANCIAL METRICS

Compelling HPA First Project Stage 2 financial metrics - steady-state production in 2030

HPA First Project Stage 2 Steady-state Financials

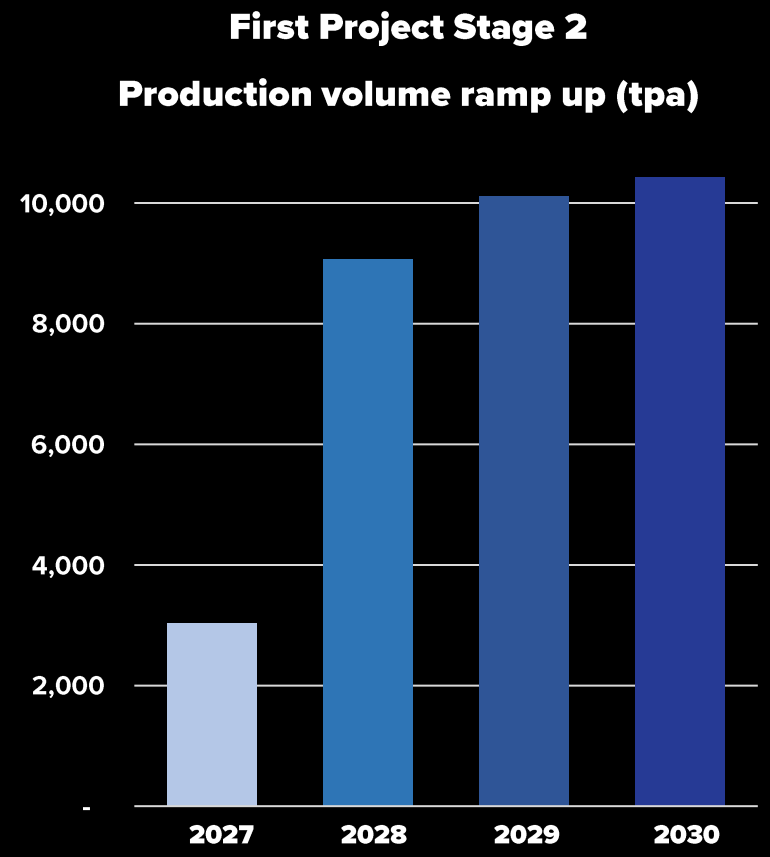
(does not include Alpha Sapphire)

	DFS - May 2024
Key Project Metrics at Steady State (10,430 tpa)	**Alpha HPA Price Discovery Case**
	US$**
Annual Revenue	**$251.3M**
Annual Operating Costs	$70M
EBITDA (less Payroll Tax & Royalty)	**$178.5M**
Pre-Tax Free Cash Flows	**$175.7M**
Unit Cash Cost ($/t of aluminium product)	$6.70
Weighted Average Product Price ($US/kg)	**$24.00**

US$251M
Annual Revenue

~71%
EBITDA Margin

US$176M
Annual Pre-tax free cash flows



** AUD:USD = 0.7

Note: 1: EBITDA assumed to be post Payroll tax and royalties. Revenue based on the May 2024 Alpha HPA Price Discovery Case and Independent Pricing Case as disclosed in the HPA First Project Stage 2 Commercialisation announcement on 20 May 2024. 2. Operating Cost estimate does not include any potential impact of the Budget measures relating to critical minerals tax credits delivered as part of the Federal Budget on Tuesday 14 May 2024.

Alpha HPA

THANK YOU

Rob Williamson
Managing Director
rwilliamson@alphahpa.com.au
+61 408 414 474

Rimas Kairaitis
Executive Director and Chief Commercial Officer
rkairaitis@alphahpa.com.au
+61 407 125 176

Robert Lord
Head of Corp. Development
rlord@alphahpa.com.au
+61 400 008 553

alphahpa.com.au

Alpha HPA