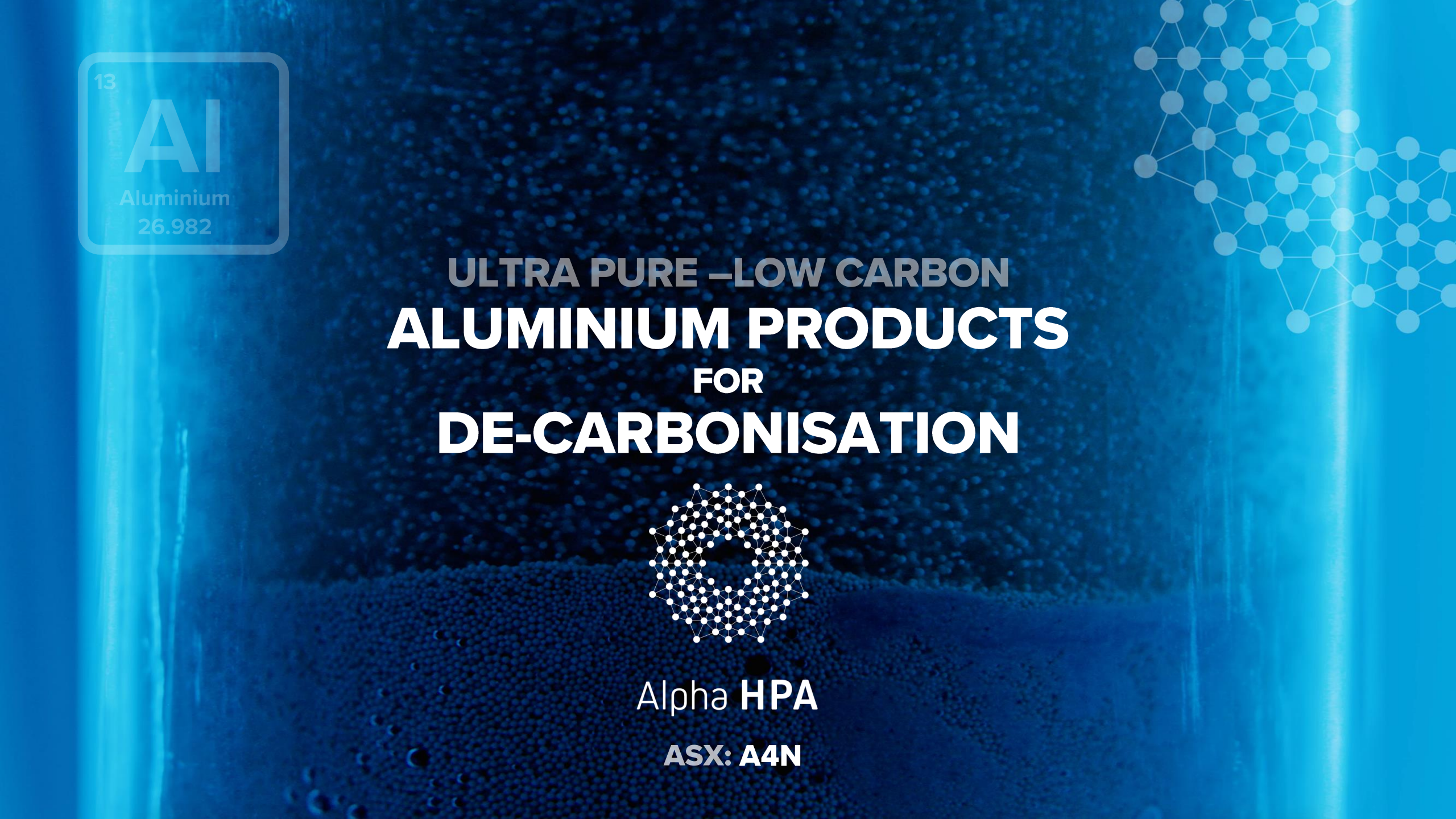

ULTRA PURE –LOW CARBON

ALUMINIUM PRODUCTS FOR DE-CARBONISATION

Alpha HPA

ASX: A4N

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 HPA. 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 financial condition, results of operations, and 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 this DFS in light of those disclosures.

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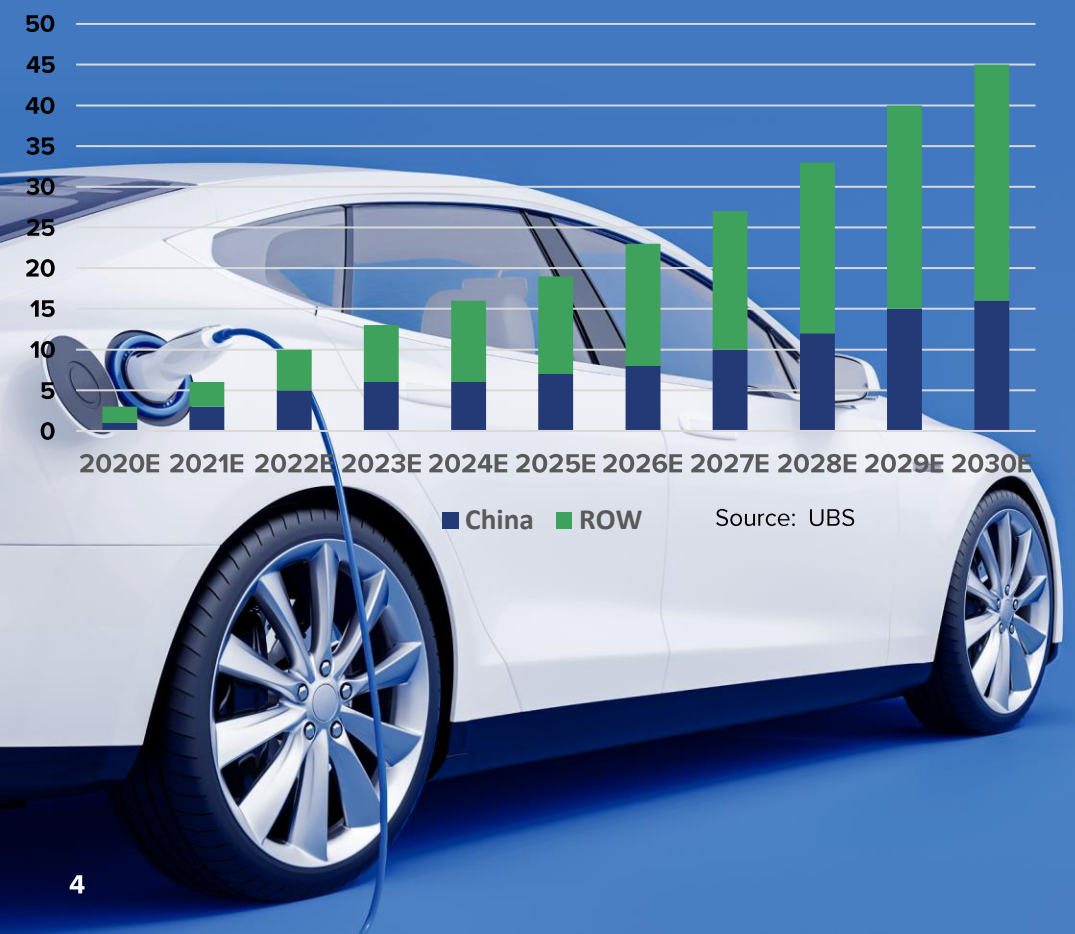
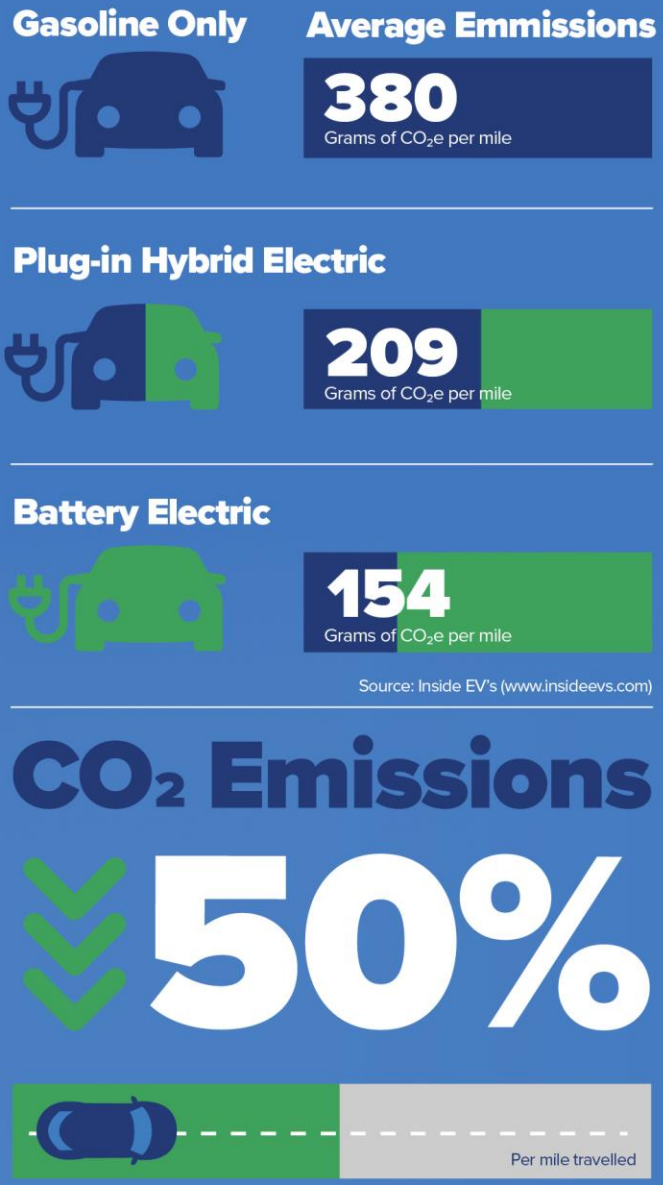
WE SUPPLY E-MOBILITY

The next major driver of de-carbonisation





WE SUPPLY

- HPA for separators
- AI-precursors for cathode
- AI-precursors for anode

Alpha **HPA**

WE SUPPLY LED-LIGHTING

The current technology driver of de-carbonisation

Mini-LEDs and Micro LEDs set to drive next wave of LED growth

75%

PROJECTED ENERGY SAVINGS IN US LIGHT ENERGY CONSUMPTION BY 2035

ANNUAL CO_2 EMISSIONS SAVINGS FROM GLOBAL LED ADOPTION BY 2035

EQUIVALENT TO 200 MILLION CARS

OR 200 NEW COAL FIRED POWER STATIONS

LEDs reduced CO_2e by an est. 570m tons in 2017

Reducing new power stations by 1,250

IN 2017, THE USE OF LEDS TO ILLUMINATE BUILDINGS AND OUTDOOR SPACES REDUCED CO_2 EMISSIONS BY NEARLY

570 MILLION TONNES

LED lights are 50-70% more efficient than incandescent

A COMPLETE SWITCH TO LED LIGHTING WORLD WIDE, WOULD PREVENT 1,400,000,000 TONNES OF CO_2 EMISSIONS

WE SUPPLY

- HPA for LED sapphire substrates
- HPA for LED phosphors
- Al-precursors for LED phosphors

Alpha HPA

Sources: US Dept of Energy, www.microled-info.com & IHS Markits

Alpha HPA: Introduction

- We are a technology/industrial chemical company
- Direct exposure to the rapidly growing **Li-ion battery and LED lighting** markets
- We do this through a suite of **ultra-high purity aluminium products** which are:

CRITICAL RAW MATERIALS FOR DE-CARBONISATION

- Our proprietary process delivers us the competitive edge

HIGH PURITY/LOW CAPEX/LOW OPEX/LOW CARBON

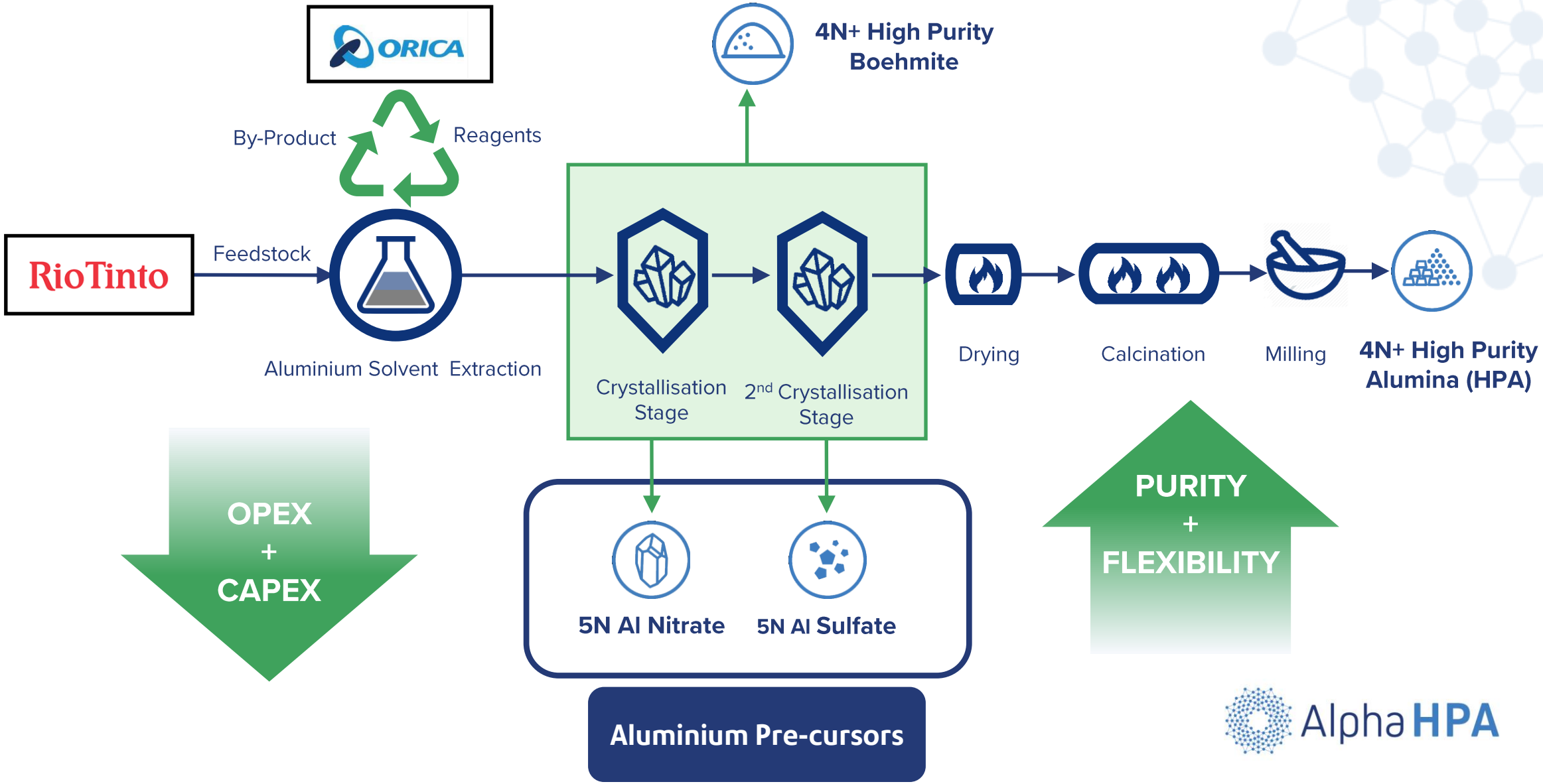
- We are commercialising our technology as the

HPA FIRST PROJECT

- **CONSTRUCTION UNDERWAY**
- **Stage 1 PPF –** 1st Commercial Production - **August 2022**
- **Stage 2 Full Scale HPA First Project -** to free cash flows of between **A$133 - $280M pa** (DFS - March 2020)

Alpha HPA

Process Flow Sheet: World First + Disruptive



Our products:

High Purity Aluminas

Al_2O_3
Ultra High Purity Alumina (HPA) Powder & Tablets

>99.995% (4N5) purity HPA engineered to suit customers specifications such as bespoke particle sized powders, sintered and un-sintered granules and sintered custom ingots.

Al-O-OH
Ultra High Purity Boehmite

A bespoke engineered >99.995% (4N5) purity Boehmite to suit specific customer requirements, ideal for LiB separator coatings and as a precursor for speciality applications.

Aluminium Pre-cursors

$Al(NO_3)_3.9H_2O$
Ultra Aluminium Nitrate

Our >99.999% (5N) purity aluminium nitrate is the purest product available at commercial scale. Key applications in particle coating, LED, aluminate scintillators and other specialty products.

$Al_2(SO_4)_3.xH_2O$
Ultra Aluminium Sulfate

Our >99.999% (5N) aluminium sulfate is the purest product available at commercial scale. A premium product for synthesis of aluminium cathode active materials (CAM) with NCA, NCMA and NFA.

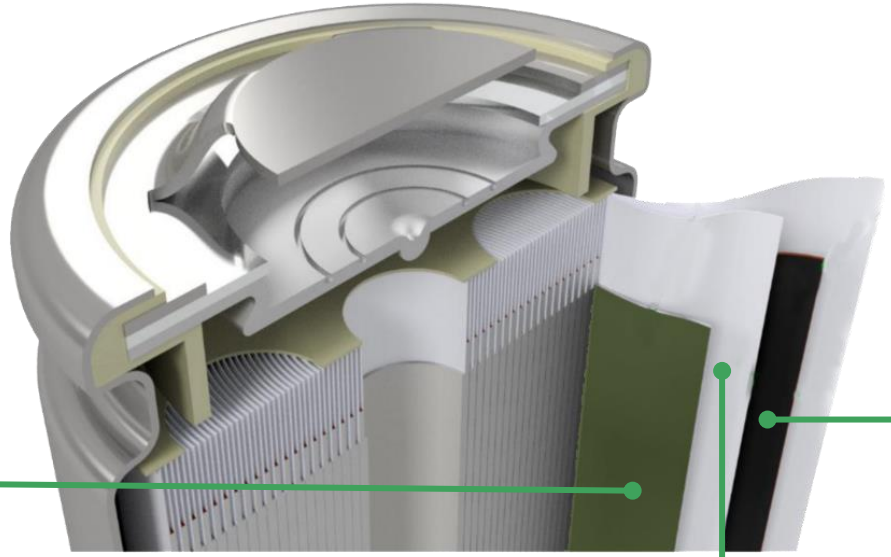
Alpha HPA

Our products for the lithium-ion cell

CATHODE

Cathode pre-cursors for NCA & NCMA and alumina coating

5N Al-Nitrate
+
5N Al-Sulfate



ANODE

Pre-cursors for coating graphite and silicon anode

5N Al-Nitrate

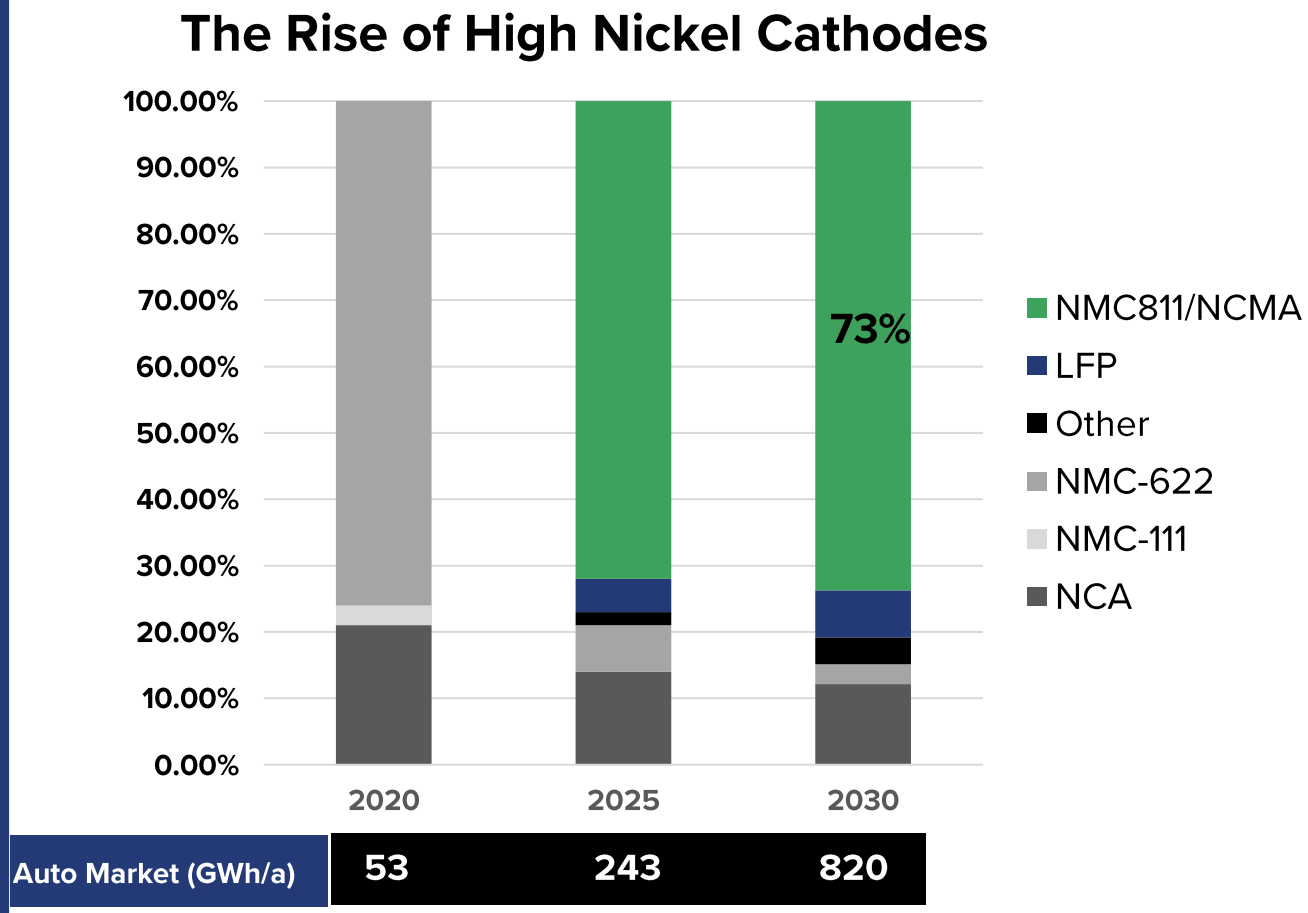
SEPARATOR

Ceramic coating for thermal management

HPA
&
High Purity Boehmite

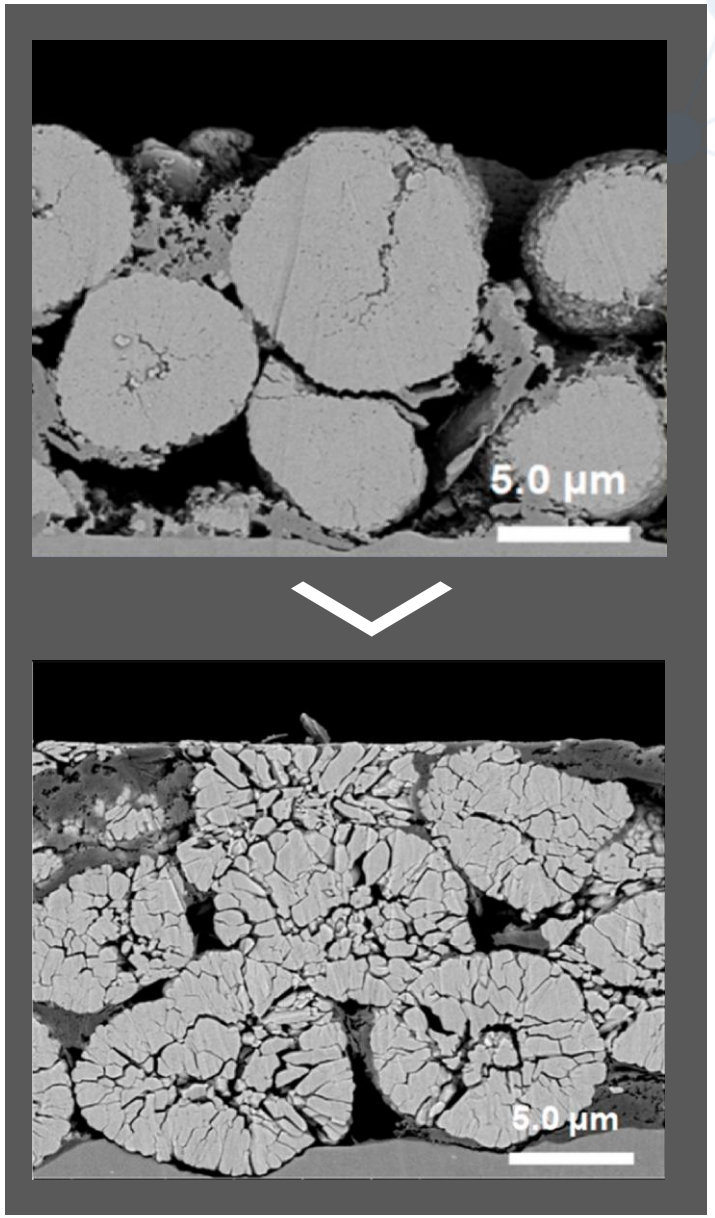
AlphaHPA

5N Aluminium Precursors: Solving High Nickel Cathodes



Source: UBS – July 2021

- High nickel cathodes to dominate by 2025
- Cathode instability solve by Alumina coating and/or Al doping
- eg: NCMA cathode – GM/Ultium



Breakdown of high nickel (NCM811) cathodes after 1,000 cycles

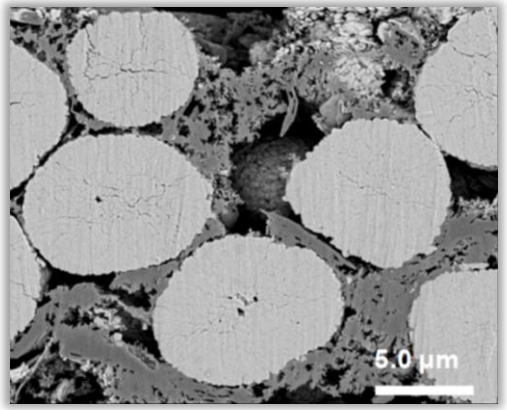
Source: Kim et al, ACS Energy 2019

5N Aluminium Precursors: Solving High Nickel Cathodes

- High Nickel Cathodes to dominate by 2025
- Cathode instability solved by Alumina coating and/or Aluminium doping
- **Alpha HPA producing both required precursors at world leading purity**

Aluminium Doping
NCA and NCMA using Al-Sulfate

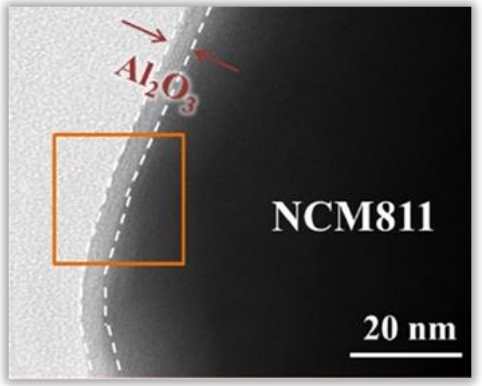
$Al_2(SO_4)_3.xH_2O$
Aluminium Sulfate



Al doped high nickel (NCMA811) cathodes after 1,000 cycles
Source: Kim et al, ACS Energy 2019

Alumina Coating
Using Al-Nitrate to coat Al_2O_3

$Al(NO_3)_3.9H_2O$
Aluminium Nitrate

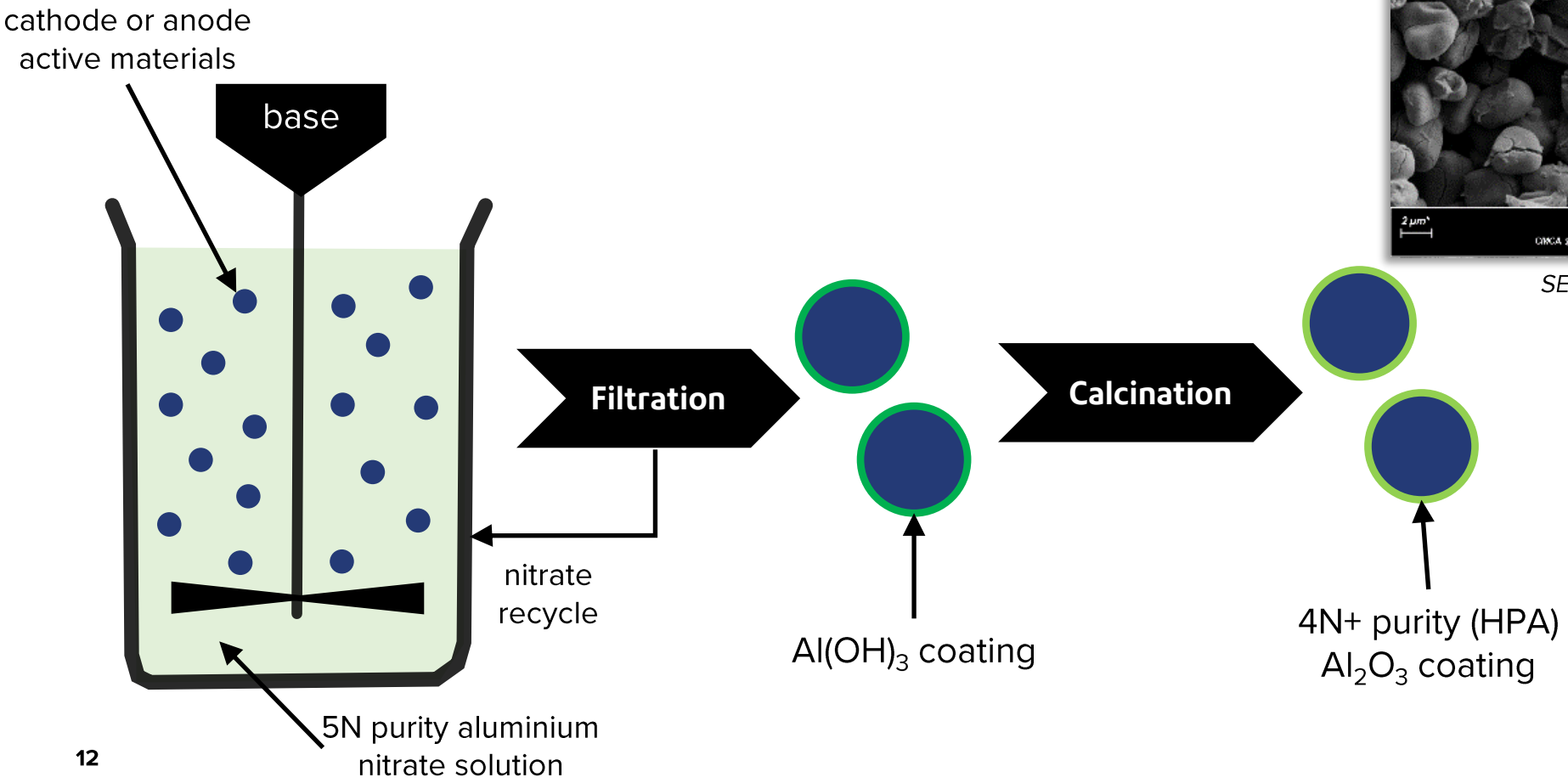


Alumina coated (NCM811) cathodes

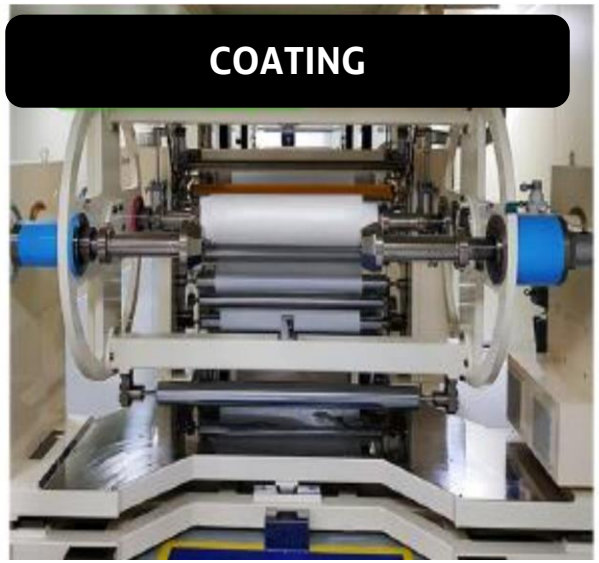
5N Aluminium Precursors: Improving Anode Performance

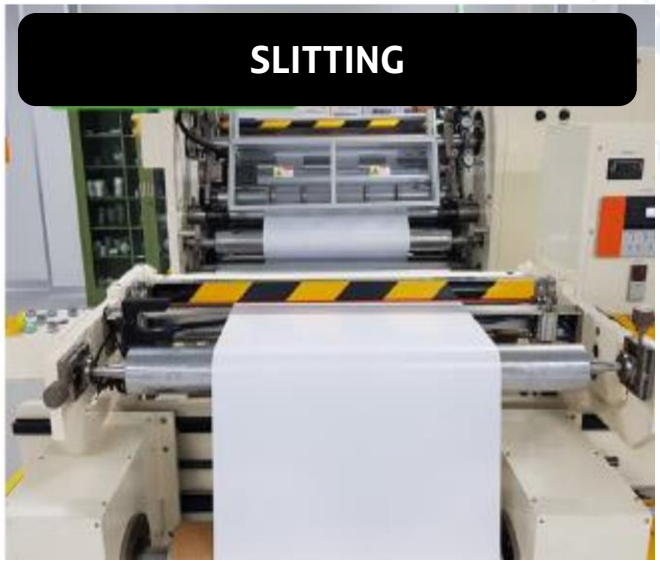
- **Alpha HPA actively working with anode developers in both Japan and EU**
- Alumina coated anodes using Al-Nitrate precursors:
  - **Improves Li-B cell charging rates**
  - **Reduces first cycle loss**
  - **Helps control anode swelling in silicon anodes**

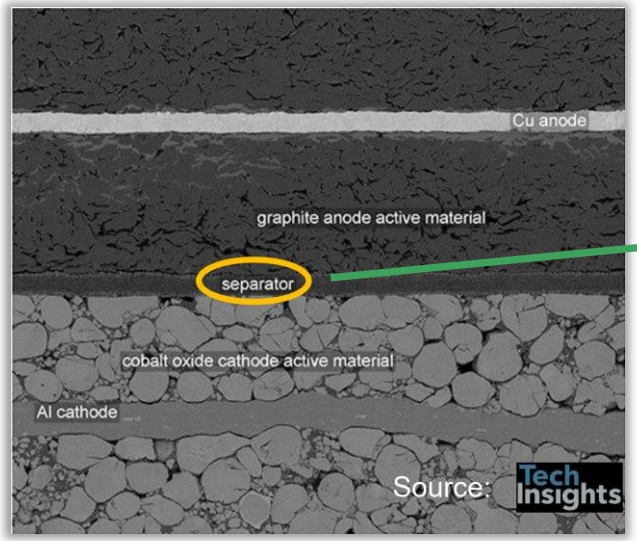
SEM of HPA coated anode materials



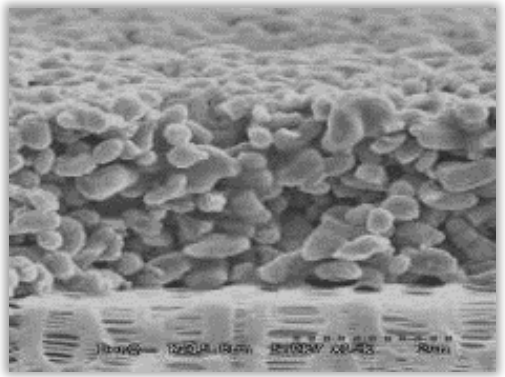
Lithium-ion battery separator coating



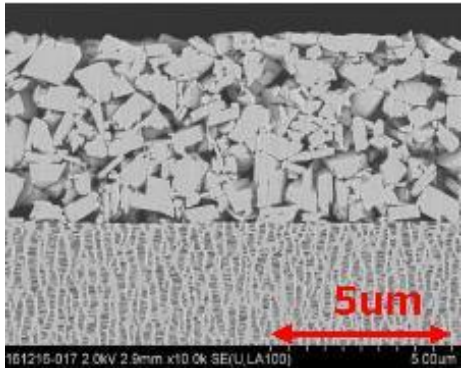




HPA Coated Separator



Boehmite Coated Separator



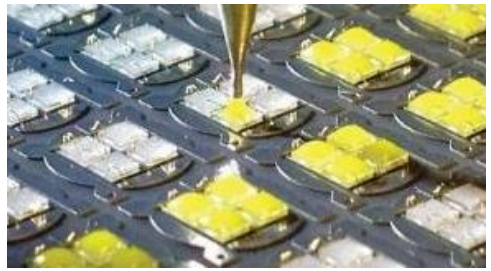
Alpha HPA

Our products for LED lights

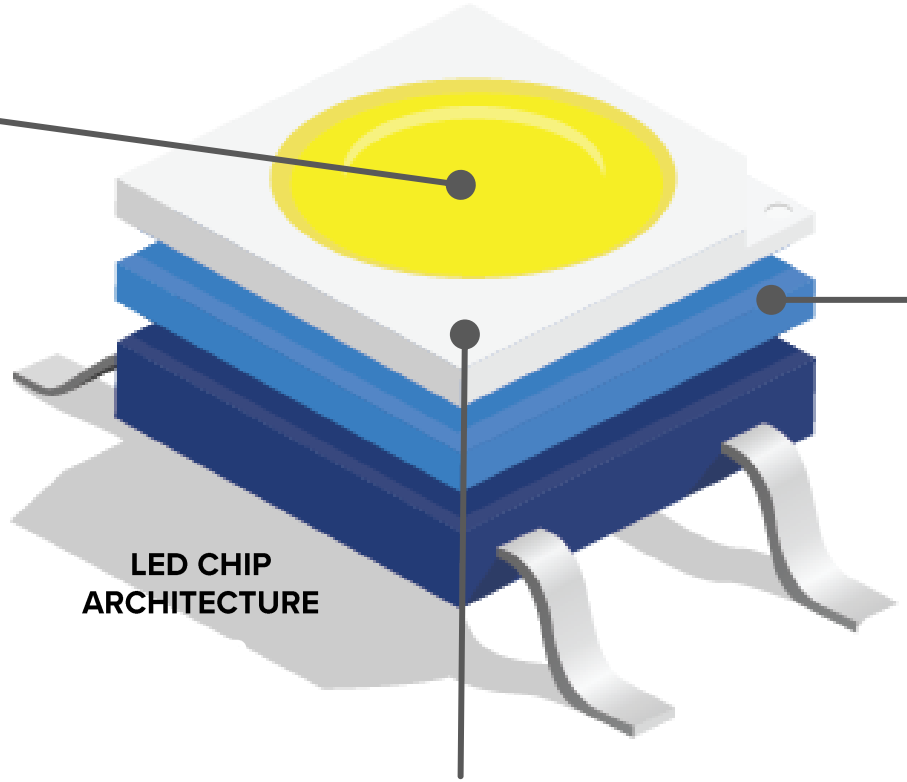
LED PHOSPHORS

Synthesis of Aluminate (YAG) Phosphors for white LEDS

HPA
+
5N Al-Nitrate



Addition of YAG phosphors to LED lighting circuits



Ga-N circuit & Active Layers

SAPPHIRE GLASS WAFERS

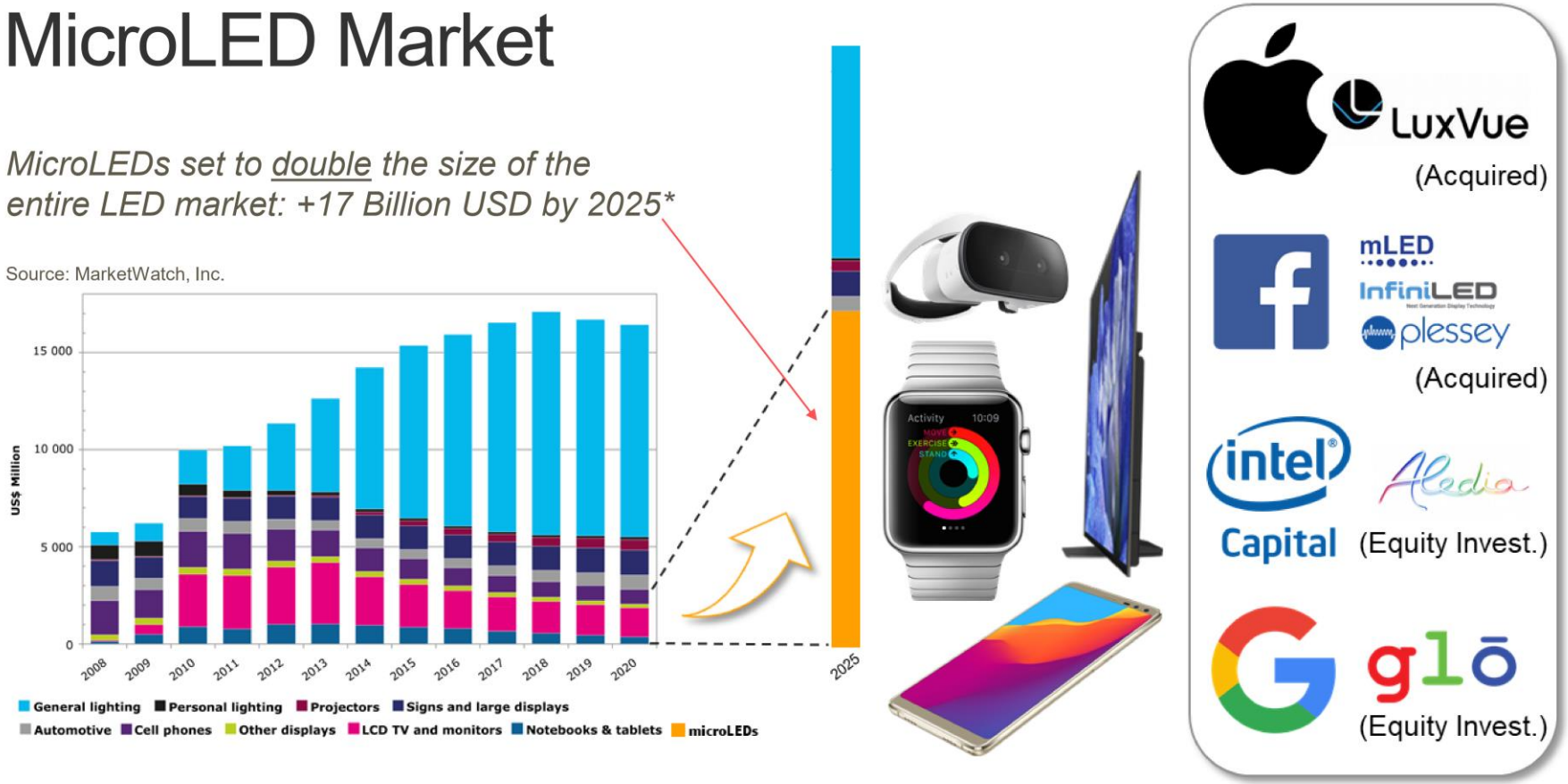
Sapphire crystal growth cut to sapphire wafer

HPA Pellets

AlphaHPA

5N Aluminium-Nitrate: Micro-LED's

- Adoption of micro-LEDs has the potential to double existing LED market
- Micro LEDs require nano-size phosphors
- Nano-size phosphors increasingly require 'wet process' synthesis >> using Al-nitrate



Sapphire Glass Manufacture:
ALOX Technology

- Alpha HPA is qualified for single crystal sapphire boule production grown by premium sapphire glass manufacturer ALOX Technology
- Alpha HPA now in discussions with ALOX on commercial supply

Alpha HPA's sintered pellets

Crucible stacking

Single crystal boule

- 10ha project site secured (Nov 2021)
- Stage 1 Construction underway
- Adjacent to Orica Australia to allow for Project Interface
- Definitive Orica Agreements executed – August 2021

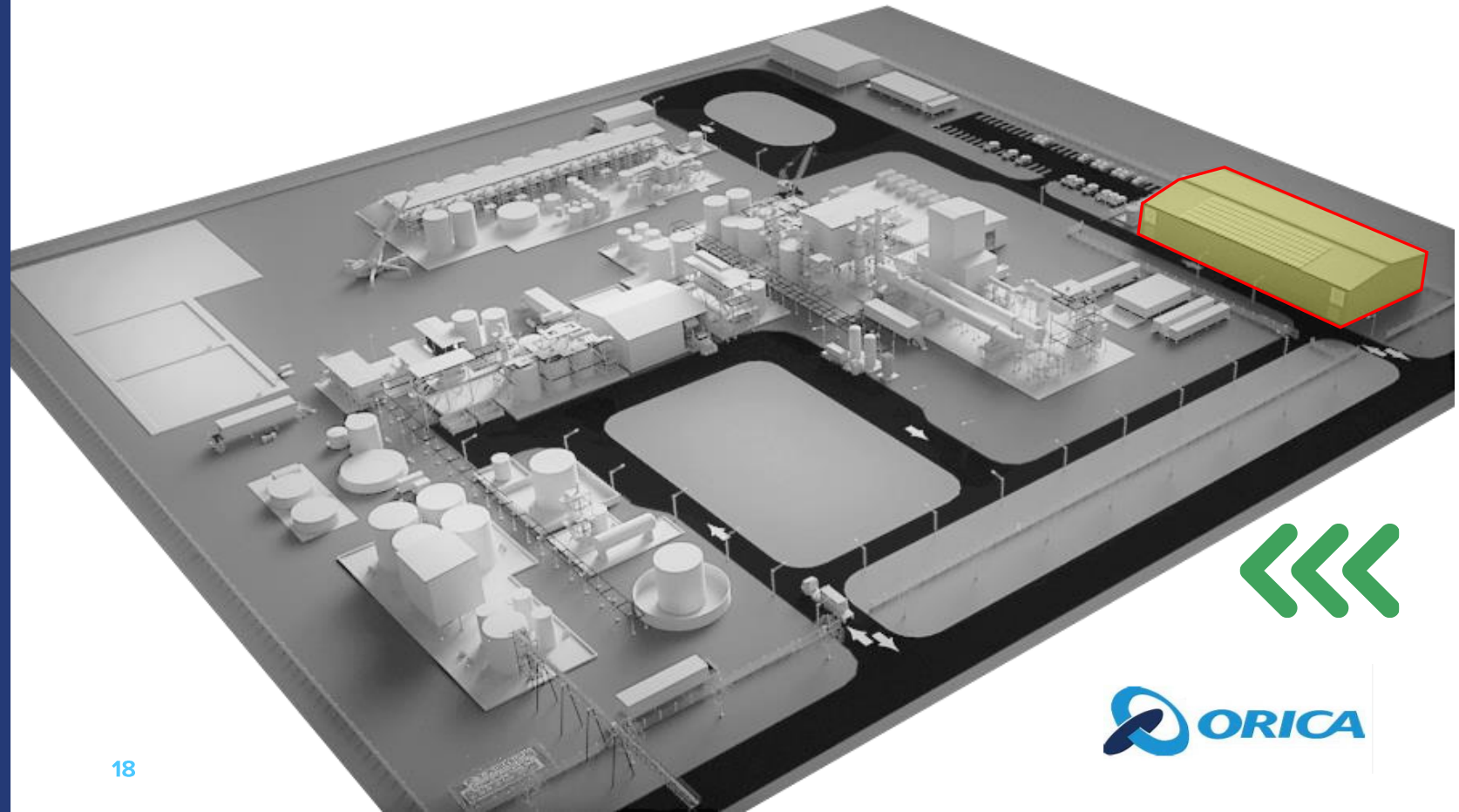
HPA First Project Site
Gladstone State Development Area, North Queensland

HPA First Project: Location

Alpha HPA

Project Layout:
Stage 1: PPF
Stage 2: Full Scale Facility

- The PPF to be constructed within the HPA First Project Footprint
- To be incorporated into the Full Scale HPA First Plant as a dedicated unit for 5N Al-Sulfate.
- alphahpa.com.au/our-projects

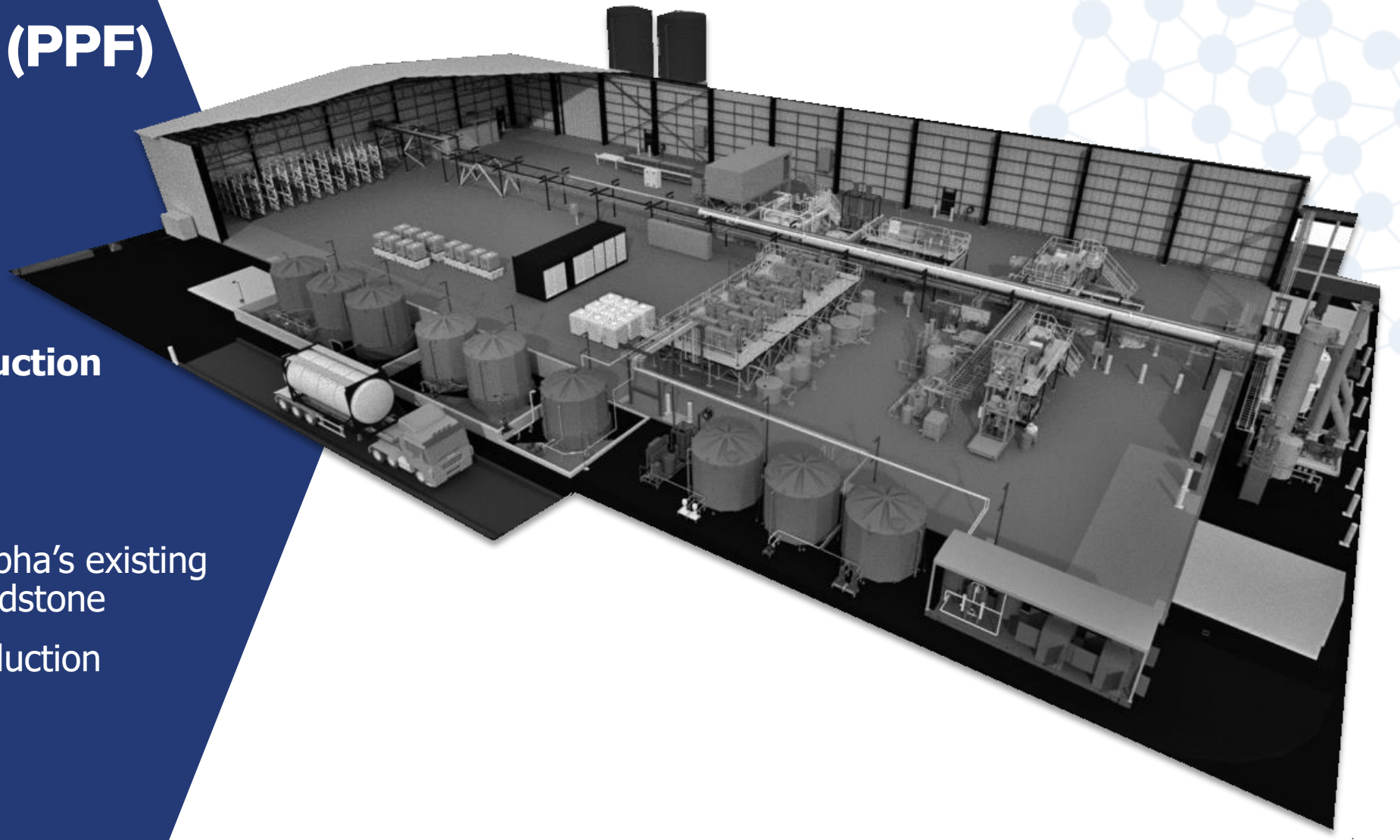


PPF to be constructed within the HPA First Project footprint, and then incorporated into the full-scale commercial plant.

Orica to supply reagents and offtake by-product for both the PPF and the full-scale facility

Stage 1: Precursor Production Facility (PPF)

- **Fully funded PPF construction underway**
- Fast-track production of 5N Al-precursors at ~200 tpa
- To be constructed within Alpha's existing HPA First Project site at Gladstone
- Targeting August 2022 production



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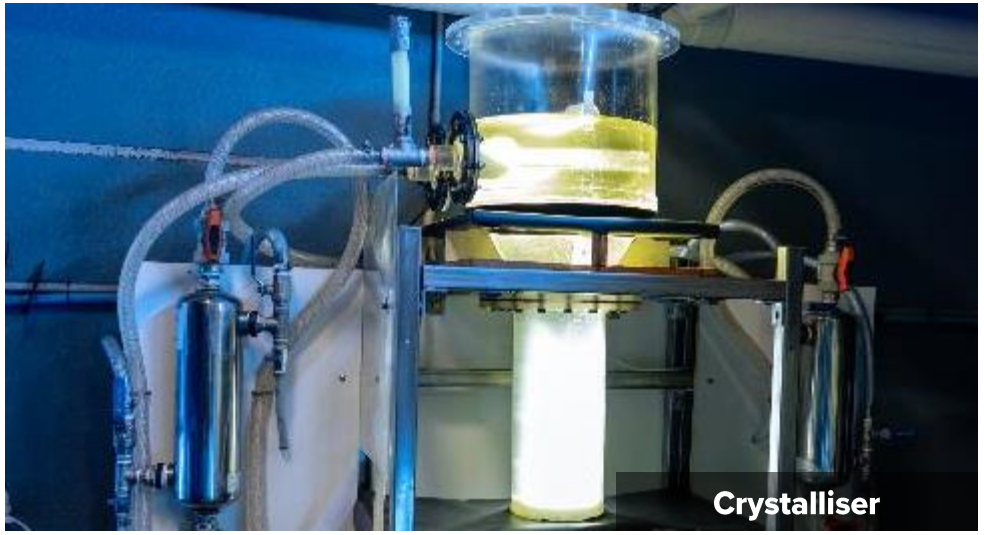
PPF Site Civils – Feb 2022

Stage 1: Precursor Production Facility (PPF)

PPF: September 2022

Stage 1: Precursor Production Facility (PPF)

HPA First Project: Brisbane Plant »»


Crystalliser


Pre-Cursor Room


Pelleting Room


Solvent Extraction

- Continuously operating facility, with over 5,000 operating hours
- Aluminium nitrate production to date >5,100kg
- Servicing specialty sales and continued product test orders

Alpha HPA

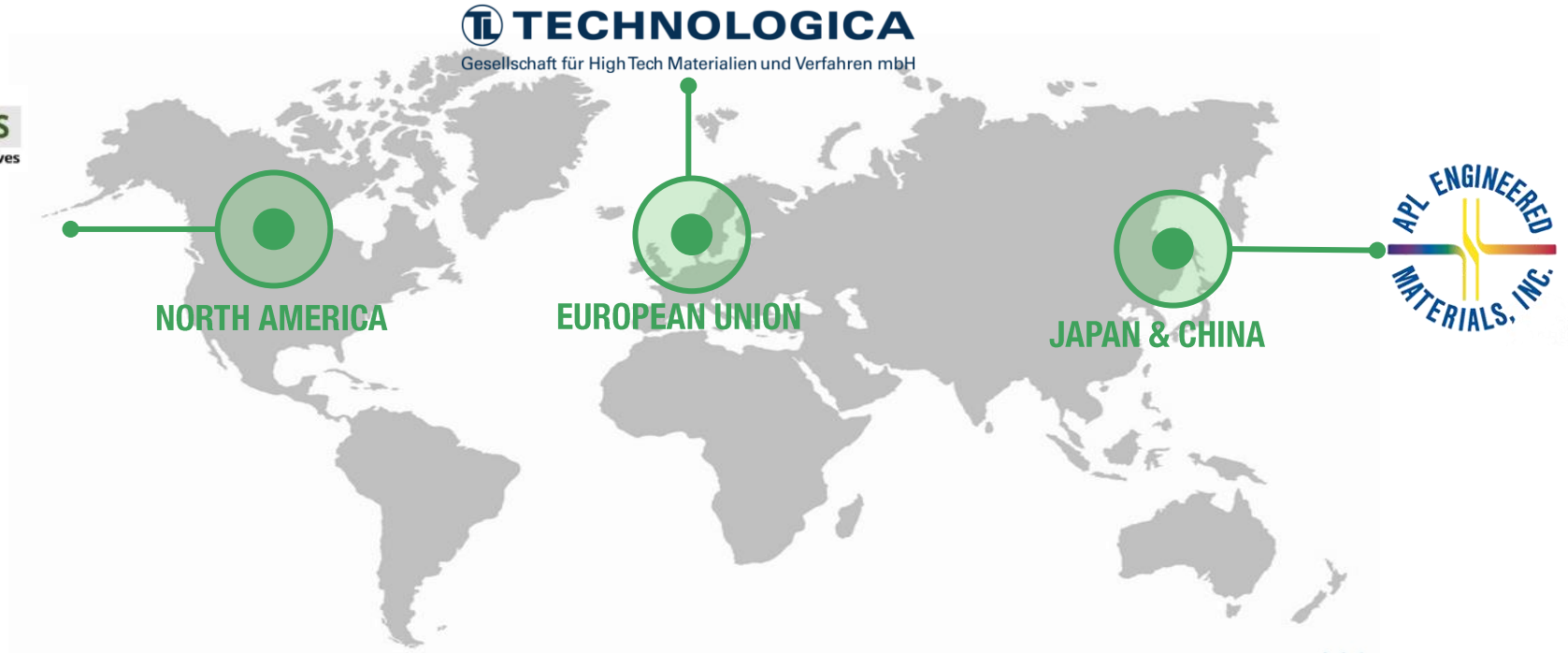
HPA First Project: Global Product Marketing

- Global marketing network established
- >85 product samples now distributed globally to >40 end users
- Products qualified for sapphire glass, LED phosphors and separator coatings
- Al-nitrate and HPA sales commenced
- **February 2022**:
  - Multiple (14) bids submitted for high value supply contracts
  - A further 23 separate end users testing/qualifying multiple products

RHINELAND SPECIALTIES
Specialty intermediates and additives

SAINT-GOBAIN

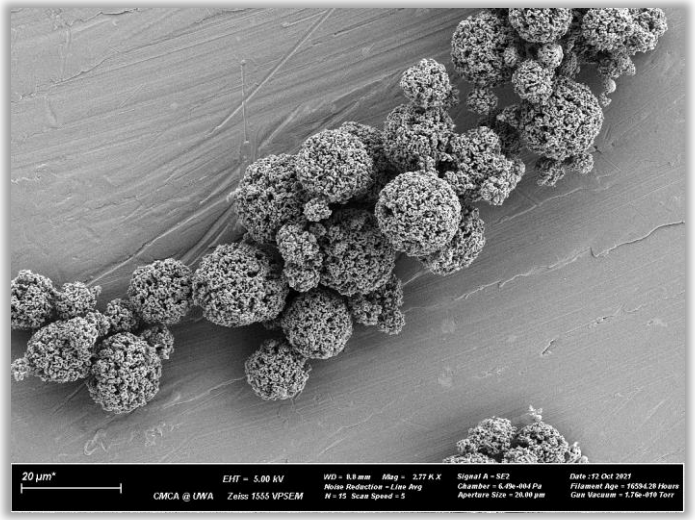
TRAXYS



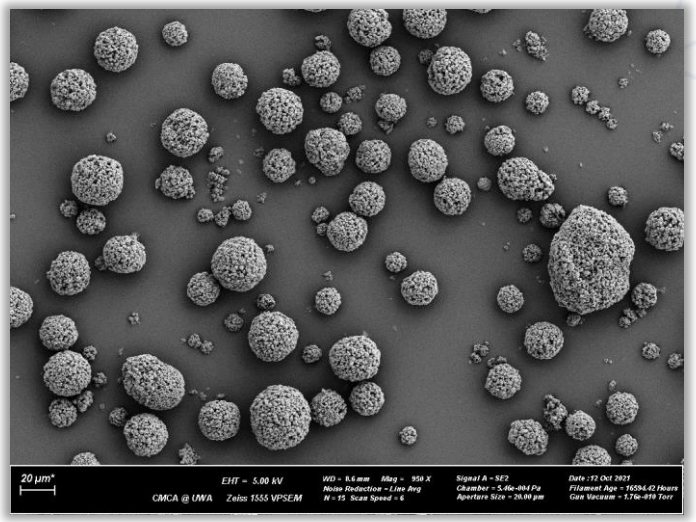
AlphaHPA

Product Marketing: Understanding our Customers

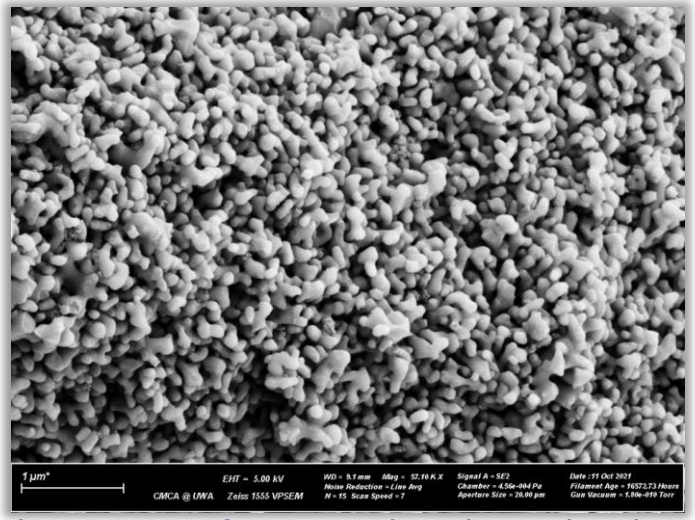
- Detailed technical interaction allows us to deliver to our customers requirements



HPA spheres for Japanese electronics OEM



Dispersible boehmites for US ceramics OEM



Sub micron HPA for German based LED phosphor OEM

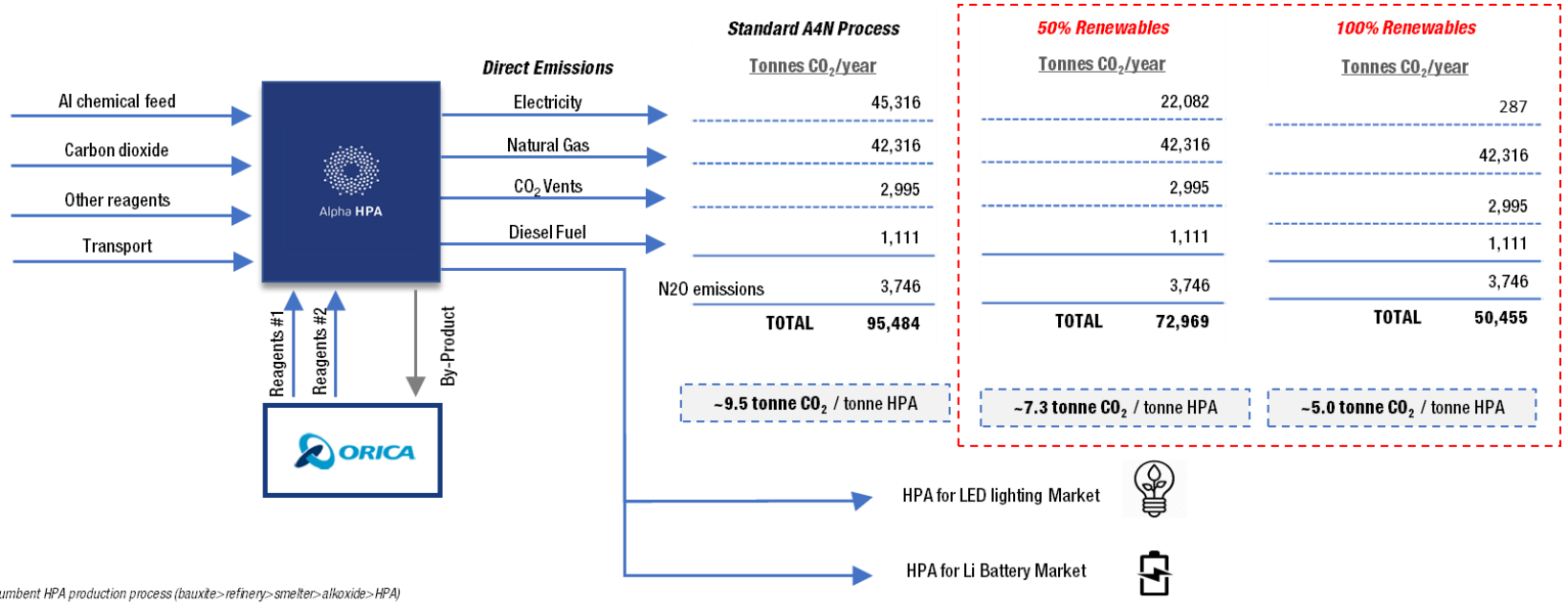
HPA coated Li-B anodes for EU anode OEM

AlphaHPA

HPA First Project: Low Carbon Footprint

- Alpha HPA has a MOU with CleanCo (QLD) for up to 100% renewable energy supply
- 100% renewable energy supply represents a 59% reduction in CO_2 emissions vs the incumbent (alkoxide) HPA process

Item	Tonnes CO_2 per tonne HPA	
Incumbent alkoxide process	12.44	
		CO_2 Reduction
HPA First Project - process baseline	9.5	22.4%
HPA First Project - 50% renewable electricity purchase	7.3	41%
HPA First Project - 100% renewable electricity purchase	5.04	59%



***Incumbent HPA production process (bauxite>refinery>smelter>alkoxide>HPA) estimated to have a 77GJ per tonne HPA energy profile = 12.3 tonnes CO_2 per tonne HPA*

Alpha HPA

HPA First Project: Status and Catalysts

Mar ’20 Definitive Feasibility Study – ROBUST PROJECT CONFIRMED

Aug ’20: Offtake, marketing & financing MOU with Traxys

Sept ’20: 2 x High-purity Li-B Pre-Cursor manufacture confirmed

Feb ’21: Major Project Permitting Approval (MCU)

Feb ’21: HPA Pellets qualifies for sapphire glass manufacture

Apr ’21: MOU with Saint Gobain – all products

May ’21: HPA powder qualifies for LED phosphor manufacture

May ’21: MOU with CleanCo QLD to provide up to 100% Renewable Energy

May ’21: Lenders Engineers (ITE) appointed – Final bank technical DD

Aug ‘21: Orica Definitive Agreements

Sep ’21: NAIF – Strategic Assessment Phase Approval

Nov ’21: Project Site Secured – PPF CONSTRUCTION COMMENCED

Current: Global Outreach >85 end-user test products shipped, 14 supply bids submitted.

Pending: Large Volume Product Offtakes

Pending: Final Product Mix and DFS Update

Pending: Project Financing and FID

Aug ‘22: COMMERCIAL PRODUCTION OF 5N Al-PRECURSORS - PPF

Alpha HPA

Corporate Snapshot

TRADING INFORMATION

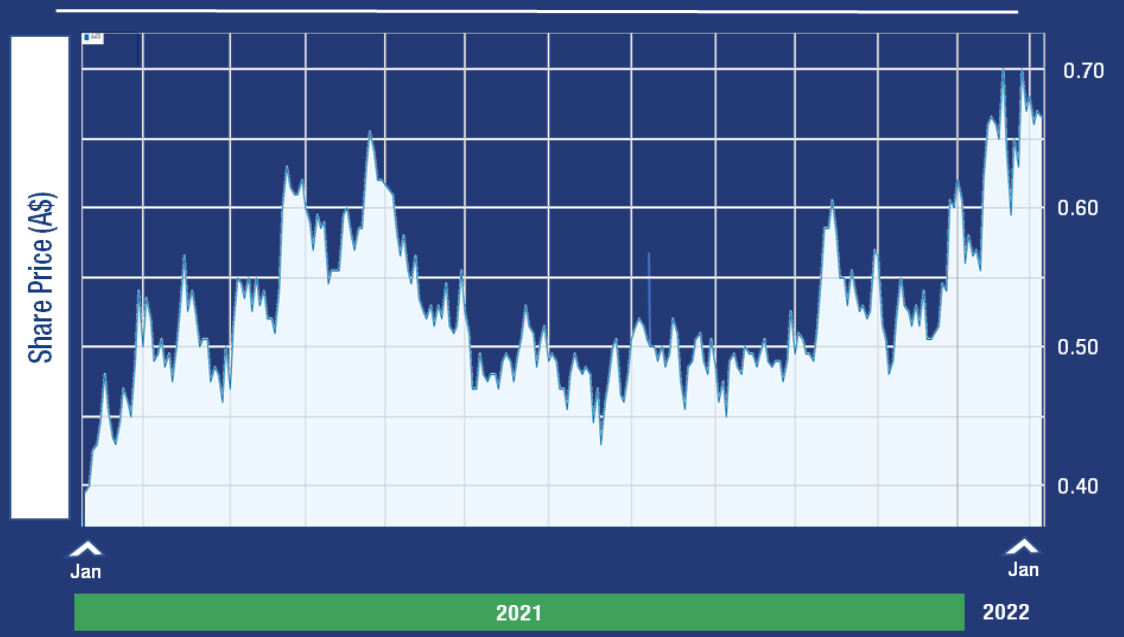
ASX CODE	A4N
Share Price (04/02/2022)	~66c
52-week trading range	40c – 70c
Issued Shares	795.5M

CAPITAL STRUCTURE

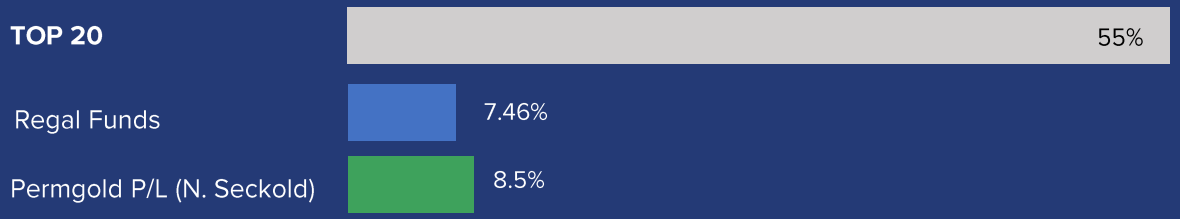
Issued Shares	795.5M
Unlisted options (@20c)*	10.0M (expire 31 July 2022)
Unlisted options (@30c)	31.6M (expire 31 July 2022)
Unlisted options (@35c)*	5.0M (expire 30 Sept 2023)
Unlisted options (@35c)	26.0M (expire 31 July 2023)
Market Cap	$525M
Est Cash (31-01-2022)	~$36.4M – No Debt
Enterprise Value	$488.6M

* Licensor Options

SHARE PRICE PERFORMANCE – 12 MONTHS



SHAREHOLDERS



13
Al
Aluminium
26.982

THANK YOU

Alpha **HPA**

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