Altech Chemicals Limited

Wholesale Investor
Singapore Capital Expo and Small Cap Showcase

Company Presentation

Iggy Tan
Managing Director

Altech Chemicals
Limited

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To be a world leading producer of high purity alumina (HPA)

Our vision

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- Sapphire - natural form of high purity alumina (HPA)
- Formed by mother nature like diamonds
- Extremely hard – no. 9 on Mohs scale (third hardest mineral behind diamond)
- Scratch-resistant artificial sapphire glass made from HPA

Sapphire gemstone

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What is HPA?

- Purified alumina or aluminum oxide (Al_2O_3)
- Greater than 99.99% (4N) purity
- Lots of work to upgrade SGA (99.5%) → 4N 99.99% HPA
- Maximum allowable impurities of 100ppm
- 4N category - 99.99% pure (impurity 100ppm)
  - most sales volume
- Heat resistance, electrical insulation, abrasion & corrosion resistance, extreme hardness

SGA – Smelter Grade Alumina

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Smelter Grade Alumina	High Purity Alumina	High Purity Alumina	High Purity Alumina
SGA 99.5%	HPA 99.9% (3N)	HPA 99.99% (4N)	HPA 99.999% (5N)
$0.4 per Kg	$1 -10 per Kg	$10-50 per Kg	$50-150 per Kg

Our Target Business

HPA substrate for LEDs

HPA in Sapphire Crystal Glass

High price for purity

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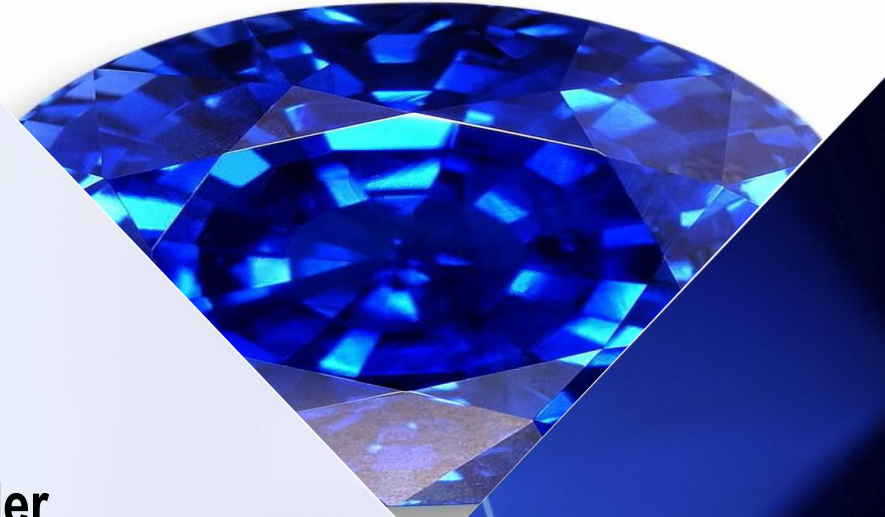
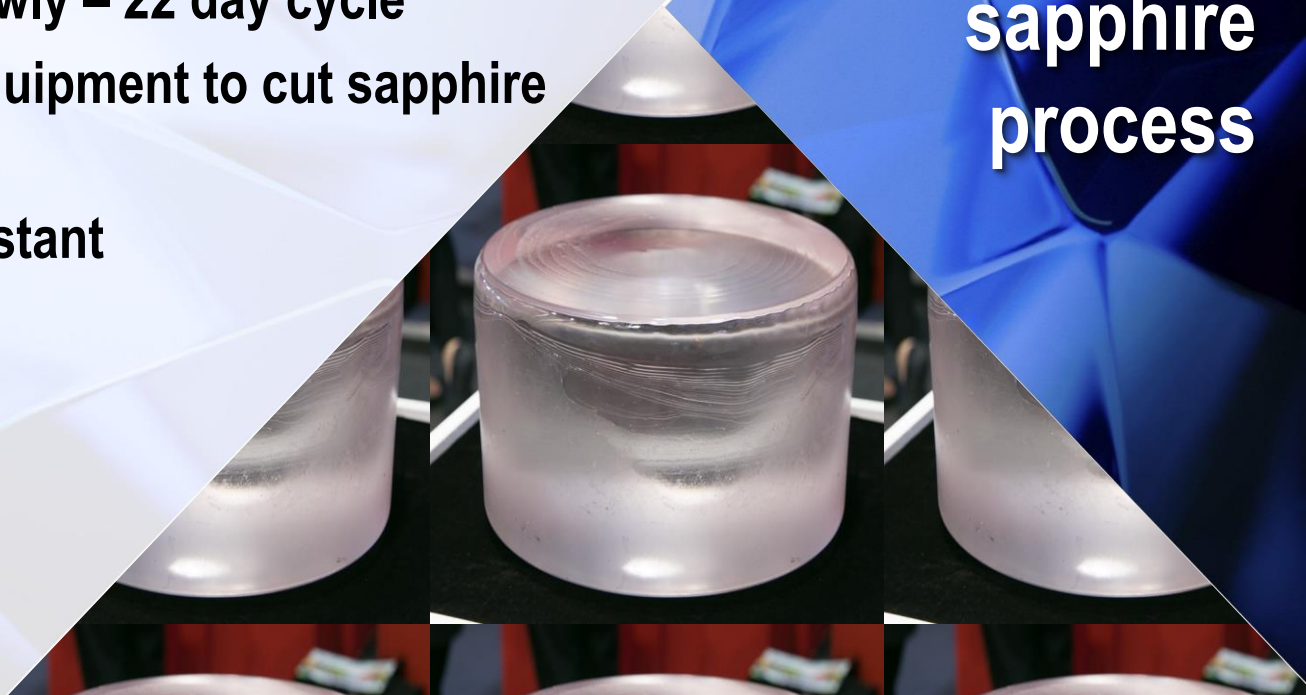
Artificial sapphire process

- HPA is placed in an autoclave
- Heated to >2,000 ^{O}C melting point under intense pressure
- Forms single crystal sapphire (boule)
- Allowed to cool slowly – 22 day cycle
- Diamond cutting equipment to cut sapphire shapes
- Heat & scratch resistant





Welcome to the world of HPA

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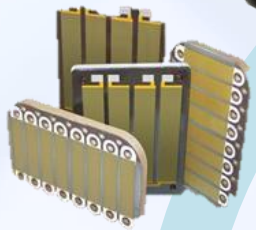
Hybrid Cars

Sodium Lamps

Display Screens

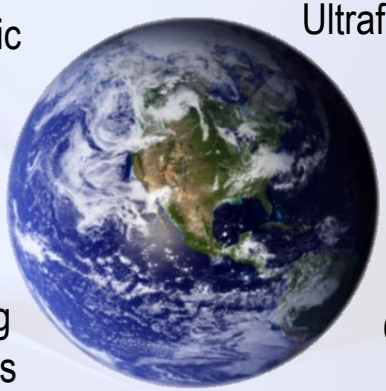


Electronic Substrates

Abrasives

Ceramic Tools

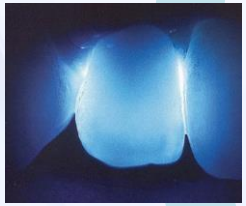
Ultrafiltration



Separation Membranes

Special Ceramics

Semiconductors



Medical

HP Refractory

Polishing Abrasives

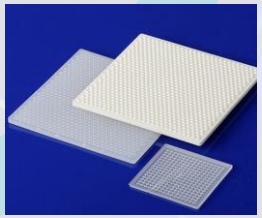
Cosmetics

Headlights

LED Lighting

Industrial

Military Aerospace



Optical Lenses

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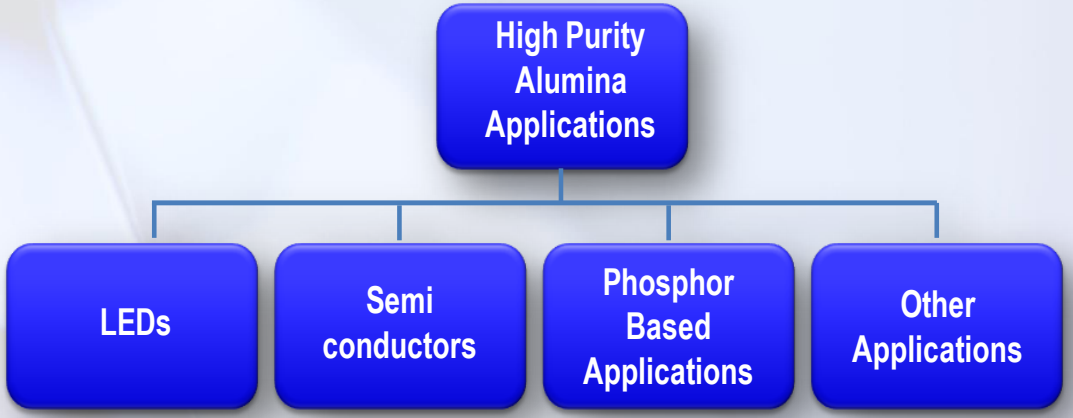
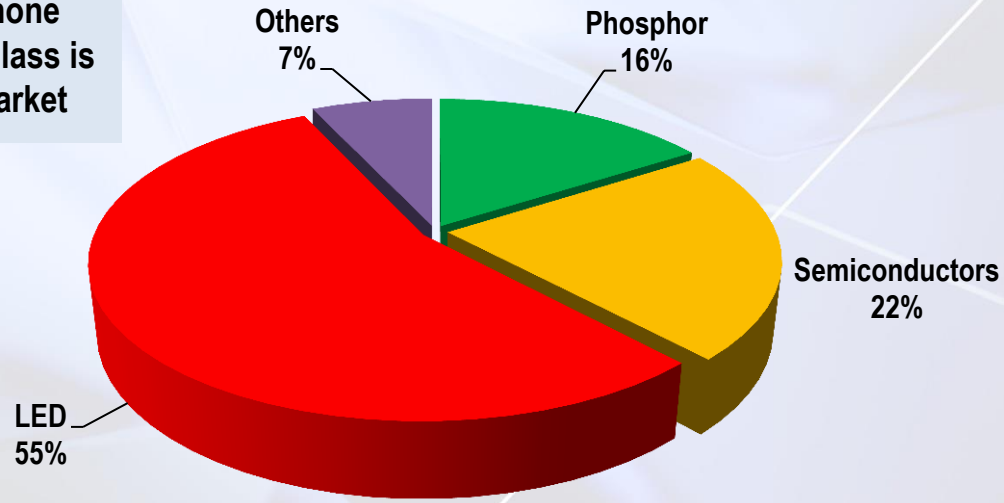
Uses of HPA 99.99% 4N



Smartphone sapphire glass is a new market



Technavio Research

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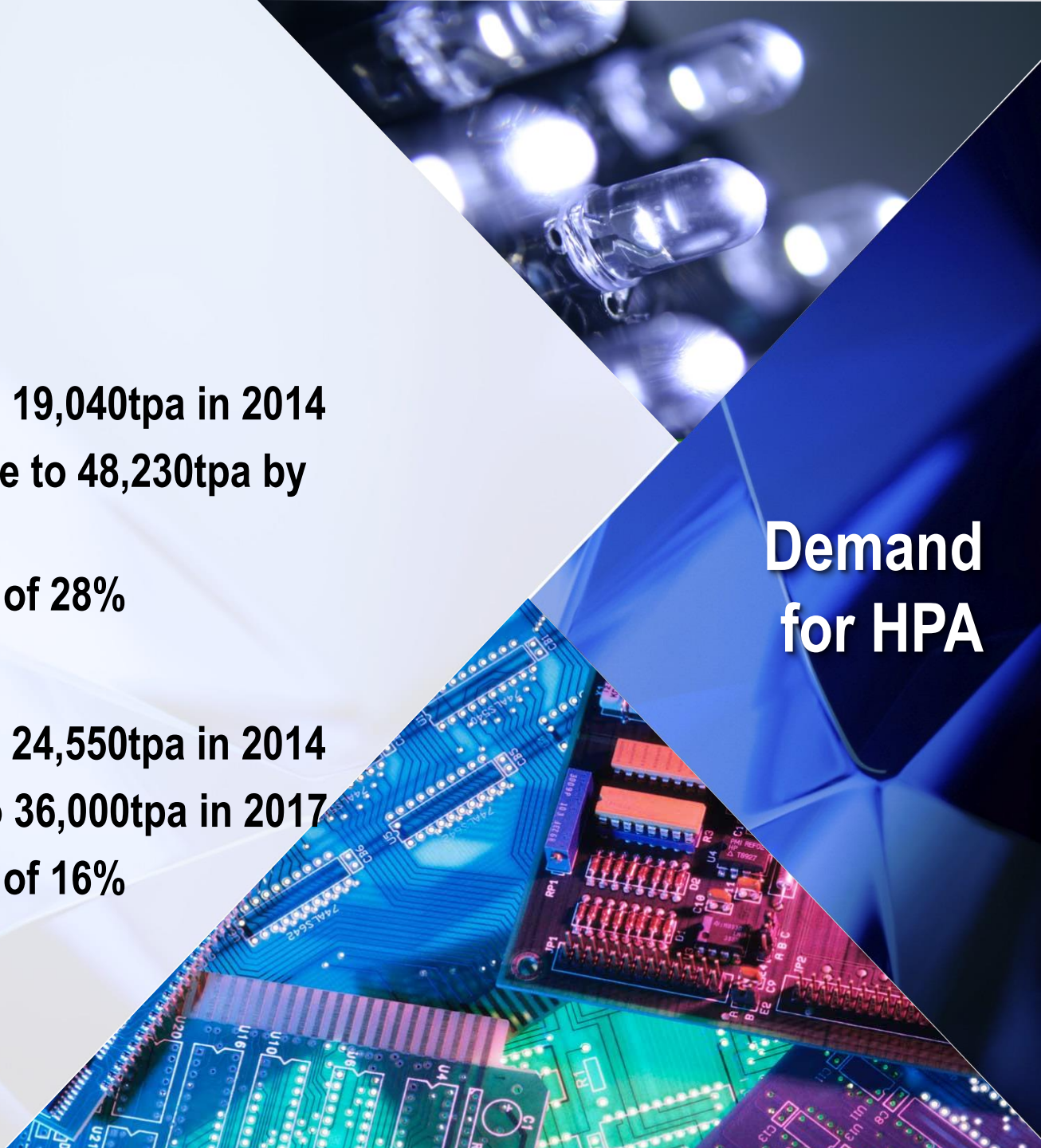
Demand for HPA



Technavio Research

- Global HPA demand 19,040tpa in 2014
- Expected to increase to 48,230tpa by 2018
- Growing at a CAGR of 28%

QY Research

- Global HPA demand 24,550tpa in 2014
- Expected to grow to 36,000tpa in 2017
- Growing at a CAGR of 16%

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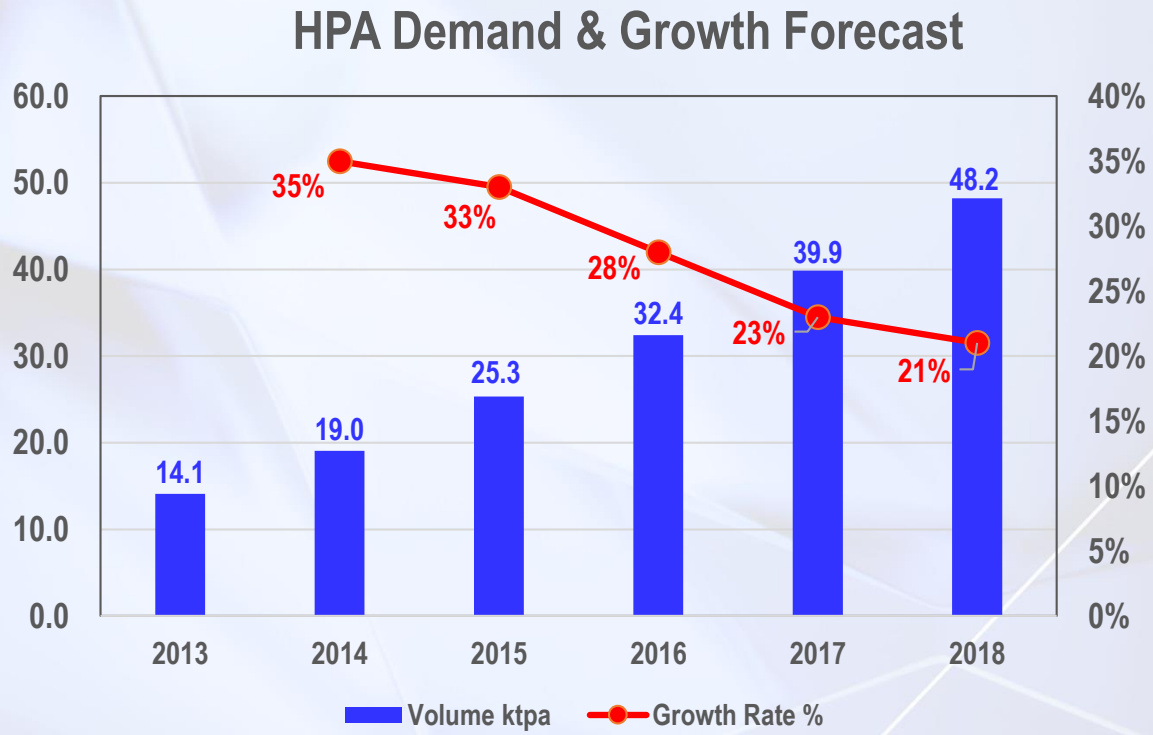
Demand for HPA



- **Rapid growth rates**
- **Estimated supply deficit**

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HPA demand: smartphones

- Estimate 30g[1] of HPA in an iPhone sapphire glass screen
- Approx. 300 million iPhones sold from 2013-2014
- 200 million iPhones estimated to sell in 2015
- 500 million smartphones sold per year
- If Apple implement sapphire glass technology
  - It would require about 6,000tpa of HPA
  - That's two of our 3,000tpa plants
- There will be a HPA supply deficit
- AMMG is in the right space!

1 AMMG Estimates

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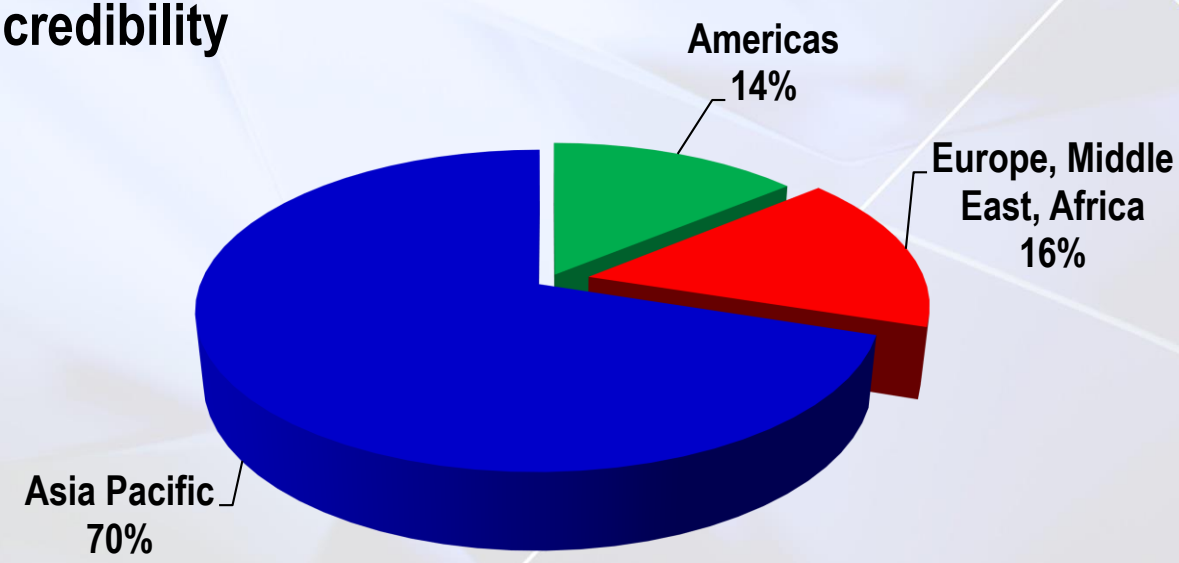
HPA geographic demand

- 70% of HPA demand is in Asia Pacific region (APEC)
  - Region for the world's manufacturing
- AMMG's HPA plant (Australia) well-positioned to service in APEC region
- Transport, customer service, technical credibility



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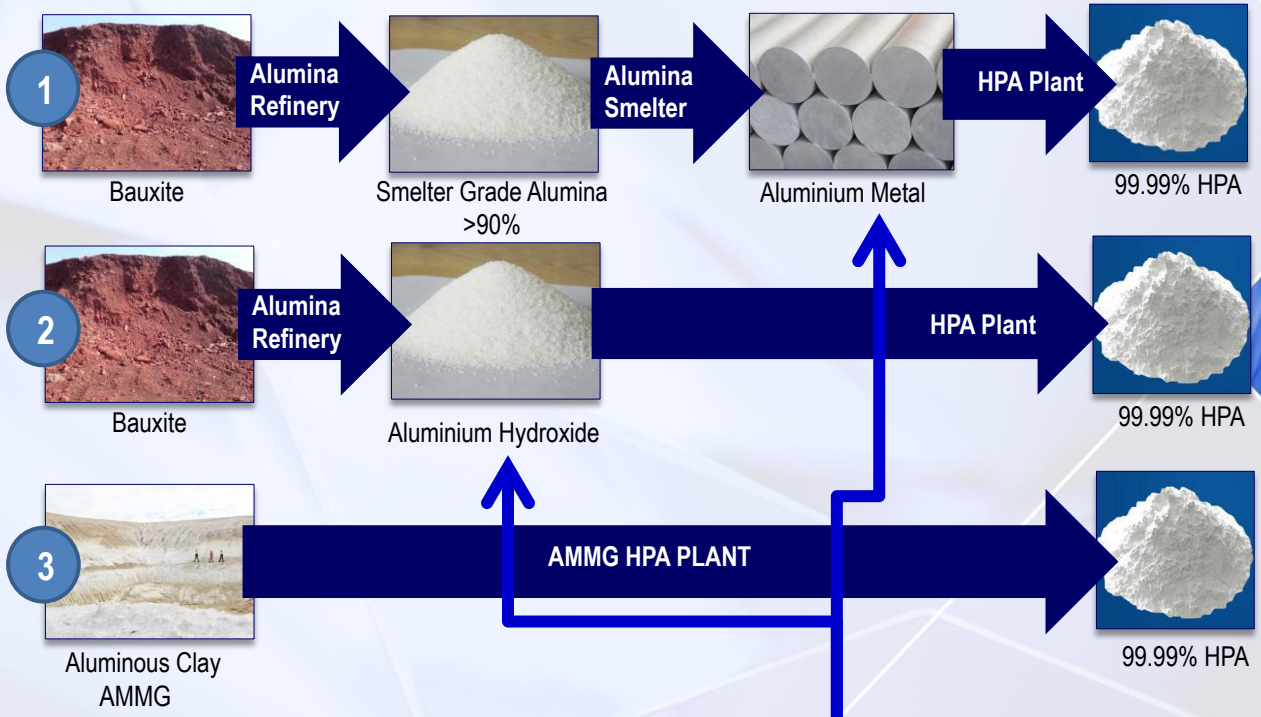
Current HPA production processes



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Low-impurity aluminous clay feedstock


Typical bauxite deposit


AMMG aluminous clay deposit

- Processed and purified by mother nature
- Very low impurities due to weathering
- Iron levels are 0.7% vs 21% in bauxite
- Silica is non reactive – easily removed

	Bauxite Darling Range	Canadian HPA Project	AMMG HPA Project
Al_2O_3 (%)	34.5	22.77	30.5
SiO_2 (%)	21.5	53.29	56.3
Fe_2O_3 (%)	21.2	8.36	0.7
TiO_2 (%)	2.00	0.98	0.7

Typical Mean Analysis

Current HPA producers

- Majors like Sumitomo, Sasol:
  - *Aluminum alkoxide from Al metal (1)*
- Chinese producers:
  - *Choline – Dissolving Al foil in choline*
- Chinese producers:
  - *Aluminium Hydroxide (2) (from bauxite-alumina process) with HCl*
- All use relatively expensive feedstock
- AMMG aluminous clay 5 times cheaper than Al metal (3)

Route	HPA Process Method	Feedstock Costs USD/t per 100% Al2O3
1	Aluminium Metal	$1,052 /t
2	Aluminum Hydroxide	$570 /t
3	AMMG Aluminous Clay	$220 /t

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Location of Meckering deposit

Meckering aluminous clay deposit

- Private freehold land
- Landowner agreement in place
- No native title
- Low environmental impact
- Previously mined for kaolin – trial pit
- Low stripping ratio
- 65Mt JORC Resource
- Approx. 130kms from capital city Perth (Kwinana industrial area)

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AMMG's HPA process

- HCl process employed is a conventional, proven and robust chemical process
- Can produce >99.99% HPA from aluminous clay
- Simple recovery of acid and recycling
- HCl process was first developed in early 1980's for SGA production
  - Couldn't compete with bauxite SGA costs
- Bauxite process can't achieve >99.8% due to Na
- Demand for HPA (99.99%) developed over last decade
- Right place, right time!

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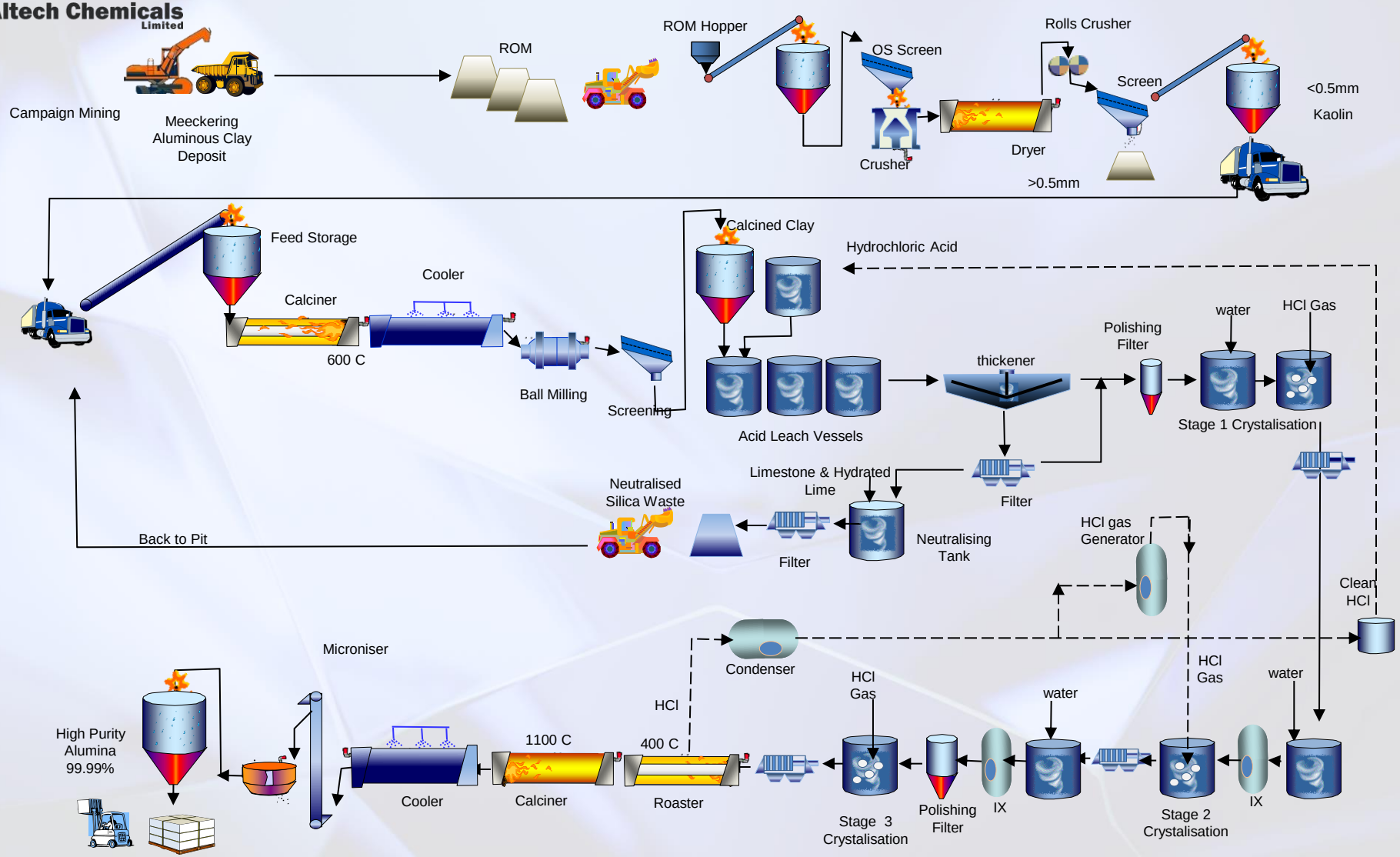
Our success so far

- Laboratory test work simulates process
- Final product achieves 99.99% (4N) HPA
- Integrated Plant Study (IPS)
- Larger optimisation pilot plant test work
- Process works and is robust
- IPS opex around A$8.6/kg
- IPS capex for 700tpa (now 3,000tpa)

AMMG's HPA Process



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Bankable Feasibility Study (BFS)

- Target: to be a top 3 HPA producer in the world
- Launched BFS for 3,000tpa HPA
  - BFS completion: end Q3 2015
- In parallel, progress necessary approvals, funding, off- take agreements etc.
- Subject to funding:
  - In position to order long lead capital items (plant equipment)
  - Then detailed design, site works, construction
- Continuous laboratory pilot plant work

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Highly experienced board:

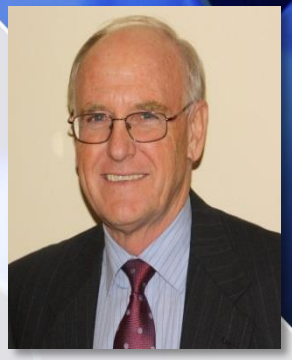
- Fundraising
- Project building
- Industrial chemical processing
- Alcoa Alumina management
- Sherwin Alumina management
- High purity chemicals

Experienced board

Luke Atkins
Chairman

Iggy Tan
Managing Director

Dan Tenardi
Non Exec Director



Peter Bailey
Non Exec Director

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Right Place

Right Time

Right Feedstock

Right Technology

Thank you

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Forward-looking Statements

This announcement contains forward-looking statements which are identified by words such as 'anticipates', 'forecasts', 'may', 'will', 'could', 'believes', 'estimates', 'targets', 'expects', 'plan' or 'intends' and other similar words that involve risks and uncertainties. Indications of, and guidelines or outlook on, future earnings, distributions or financial position or performance and targets, estimates and assumptions in respect of production, prices, operating costs, results, capital expenditures, reserves and resources are also forward looking statements. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions and estimates regarding future events and actions that, while considered reasonable as at the date of this announcement and are expected to take place, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of our Company, the Directors and management. We cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and readers are cautioned not to place undue reliance on these forward-looking statements. These forward looking statements are subject to various risk factors that could cause actual events or results to differ materially from the events or results estimated, expressed or anticipated in these statements.

Competent Person Statement

Technical information in this report is based on information compiled by B.Sc. Geology, AMMG Chief Geologist and a member of the Australasian Institute of Geoscientists. Mr O'Mara has sufficient exploration experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC 2004"). Mr O'Mara consents to the inclusion in this release of the matters based on his information in the form and context in which it appears.