

Altech Chemicals Limited ATC

**The CEO Sessions
ASX Exchange Auditorium**

**Company Presentation
21 February 2017**

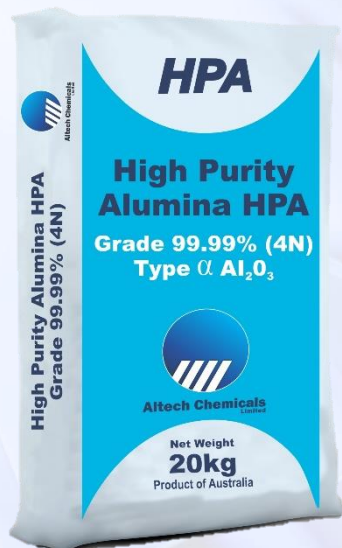


**Altech Chemicals
Limited**



Altech Chemicals
Limited

To be a world leading producer of
high purity alumina (HPA) – 4,000 tpa



Our Vision

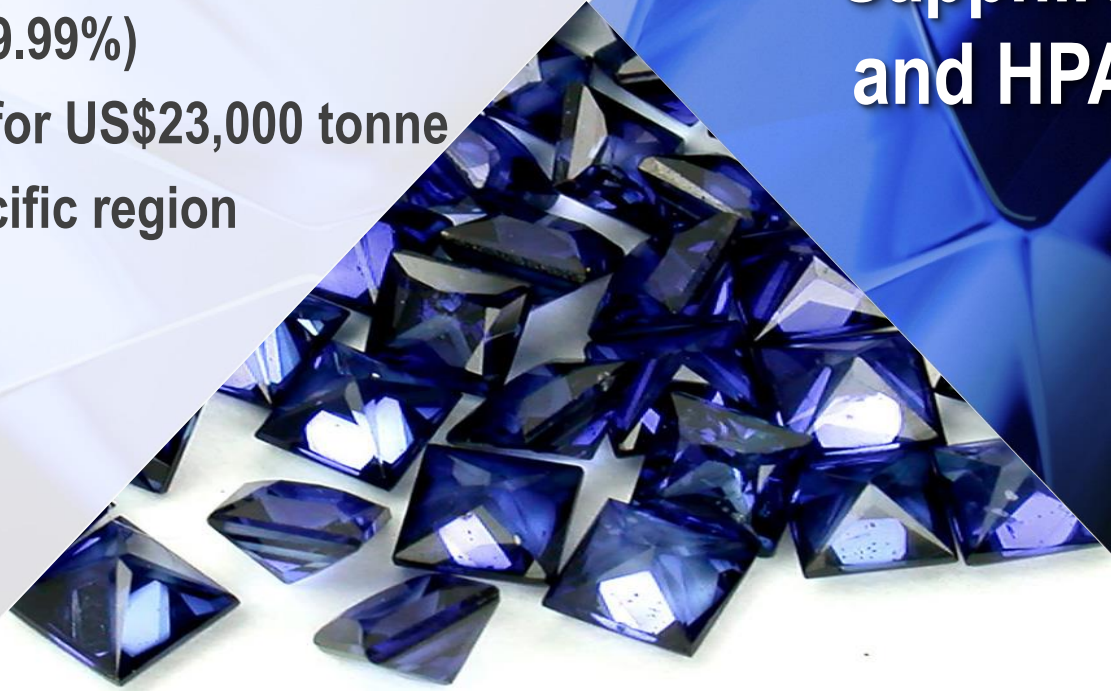




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- Sapphire as hard as diamond
- Forms in nature – temp and pressure
- Synthetic sapphire wafers
- Used in LEDs, semiconductors, watches
- Needs pure alumina (99.99%)
- 99.99% (4N) HPA sells for US\$23,000 tonne
- 70% demand - Asia Pacific region

About Sapphire and HPA





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- Purified alumina (Al_2O_3)
- 99.99% (4N) purity
- Smelter Grade Alumina (SGA) ~ 99.5% (5,000 ppm impurities mainly sodium)
- Bayer Process uses sodium hydroxide (NaOH)
- Sodium impurity is problem for electronics industry

What is HPA?



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**Smelter Grade
Alumina**
SGA 99.5%
\$400 per t



**High Purity
Alumina**
HPA 99.9% (3N)
\$6,000 per t



**High Purity
Alumina**
HPA 99.99% (4N)
\$23,000 per t



**High Purity
Alumina**
HPA 99.999% (5N)
\$50,000 per t

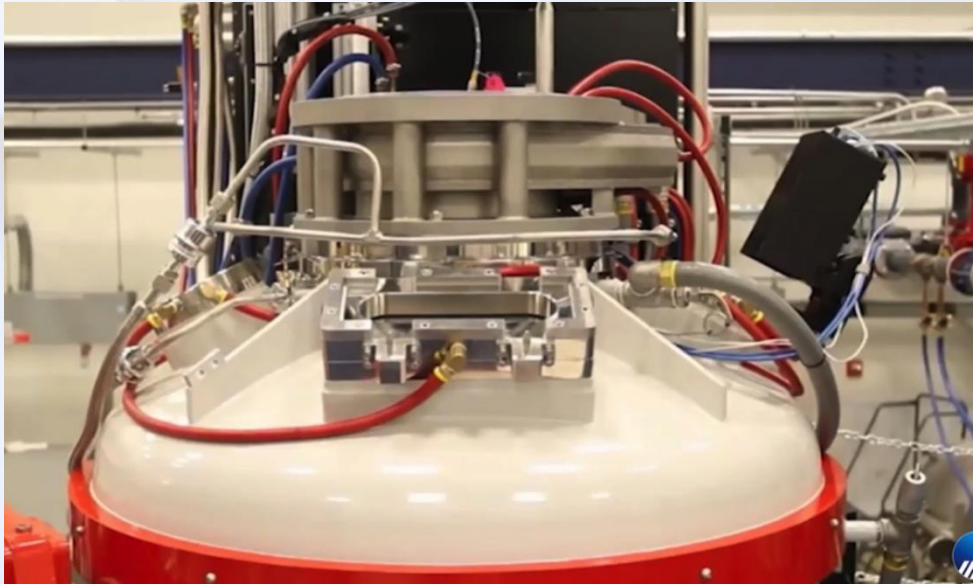
Our Target Business

HPA in Sapphire Crystal Glass

HPA substrate for LEDs

**High Price
for Purity**

Sapphire Production



HPA Furnace



Sapphire crystal boule

Sapphire Wafer Production



Sapphire wafer

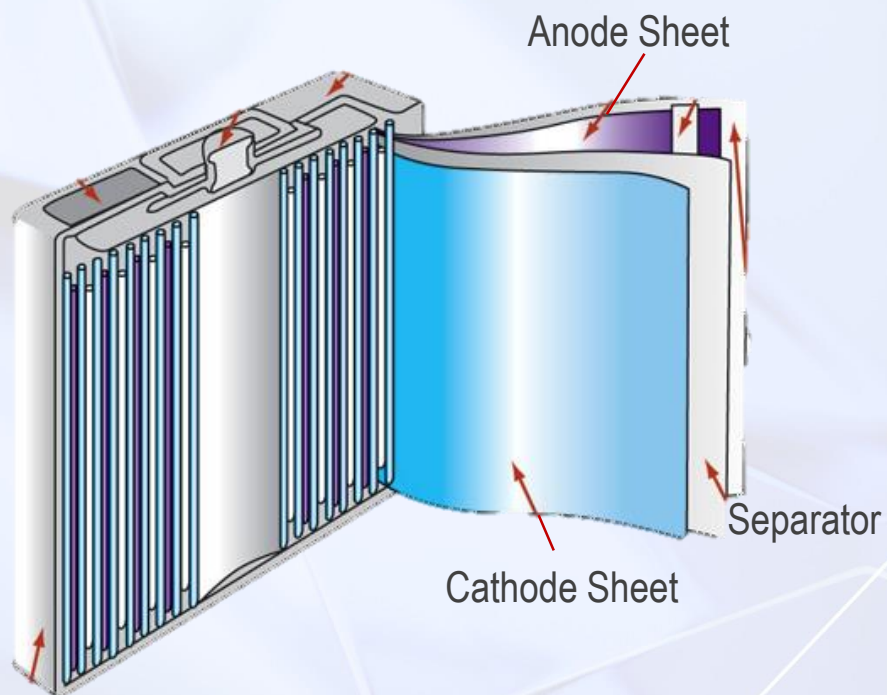


Sapphire glass screen



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Lithium-ion Battery Separator



HPA used in lithium-ion batteries



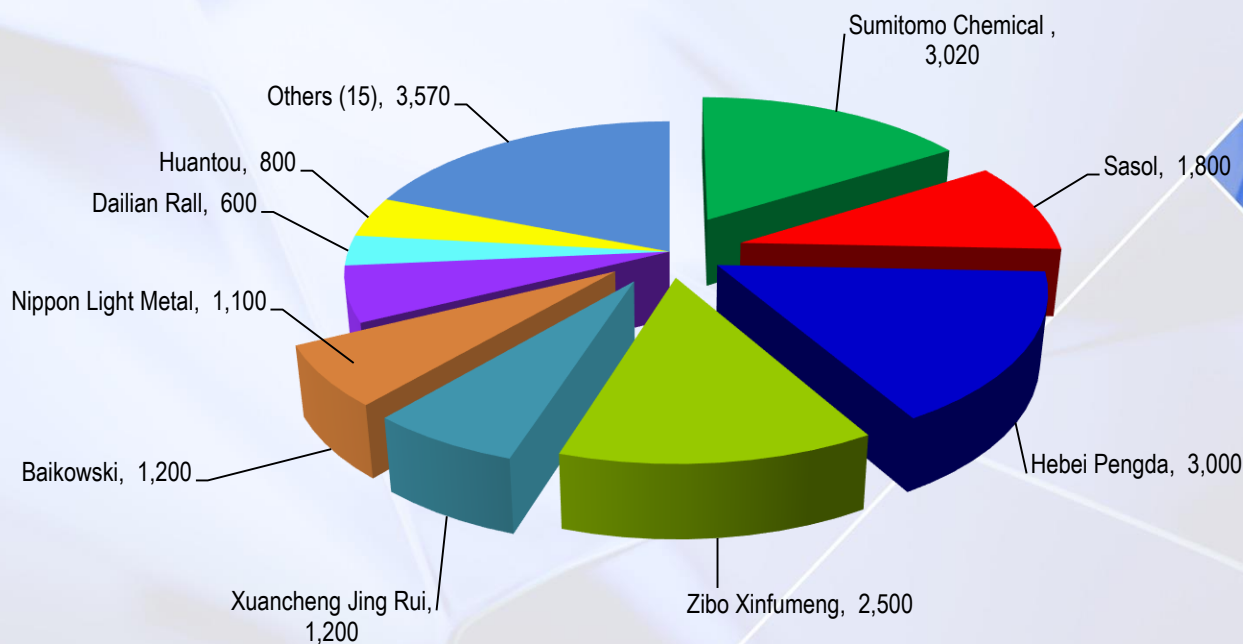
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- Global HPA demand 25,315tpa in 2016 ¹
- Expected to increase to 86,831tpa by 2024 ¹
- Growing at a CAGR of 17%
- Driven by LED growth & Lithium batteries
- Entering a fast growing market

Source: Persistence Research "High Purity Alumina Market – Global Industry Analysis and Forecast 2016-2024"

**Demand
for HPA**

- Six largest HPA producers
- 3 Chinese, 1 Japanese, 1 Sth African, 1 French



Current HPA Producers



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Altech's Differentiation

Current HPA Producers



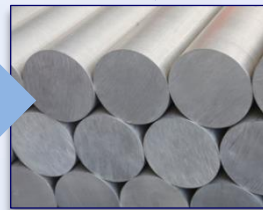
Bauxite

**Alumina
Refinery**



Smelter Grade Alumina 99.5%

**Alumina
Smelter**



Aluminium Metal

US\$3,000 per tonne

**Aluminium
Dissolution**



99.99% (4N) HPA



Kaolin
(Aluminous Clay)

ALTECH HPA PLANT

One Single Process Step



99.99% (4N) HPA



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- Very low Iron (Fe) due to weathering
- **12.7Mt JORC Mineral Resources (250 yrs)**
 - Measured Resources 1.5Mt @30% Al_2O_3
 - Indicated Resources 3.3Mt @ 30% Al_2O_3
 - Inferred Resources 7.9Mt @ 29.1% Al_2O_3
- **Deposit in Western Australia**

	Bauxite Darling Range *	Canadian HPA Project	Altech 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
K_2O (%)	0.24	3.41	0.1
NaO (%)	0.005	1.42	0.1

* Typical Mean Analysis

** JORC Ore Reserves (Refer ASX Announcement 11 October 2016). The Company is not aware of any new information or data that materially affects the information included in this announcement and confirms that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

Typical bauxite deposit

Altech kaolin deposit

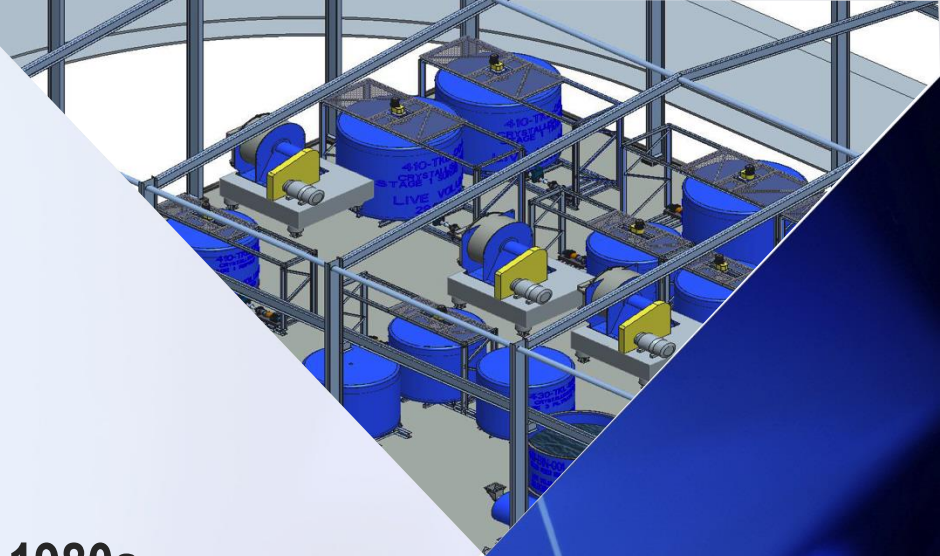
**Low-impurity
Kaolin
Deposit**



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- Work started in 2011
- Established HCl technology from 1980s
- Extensive laboratory testwork
- Pilot laboratory testing
- Completed successful BFS

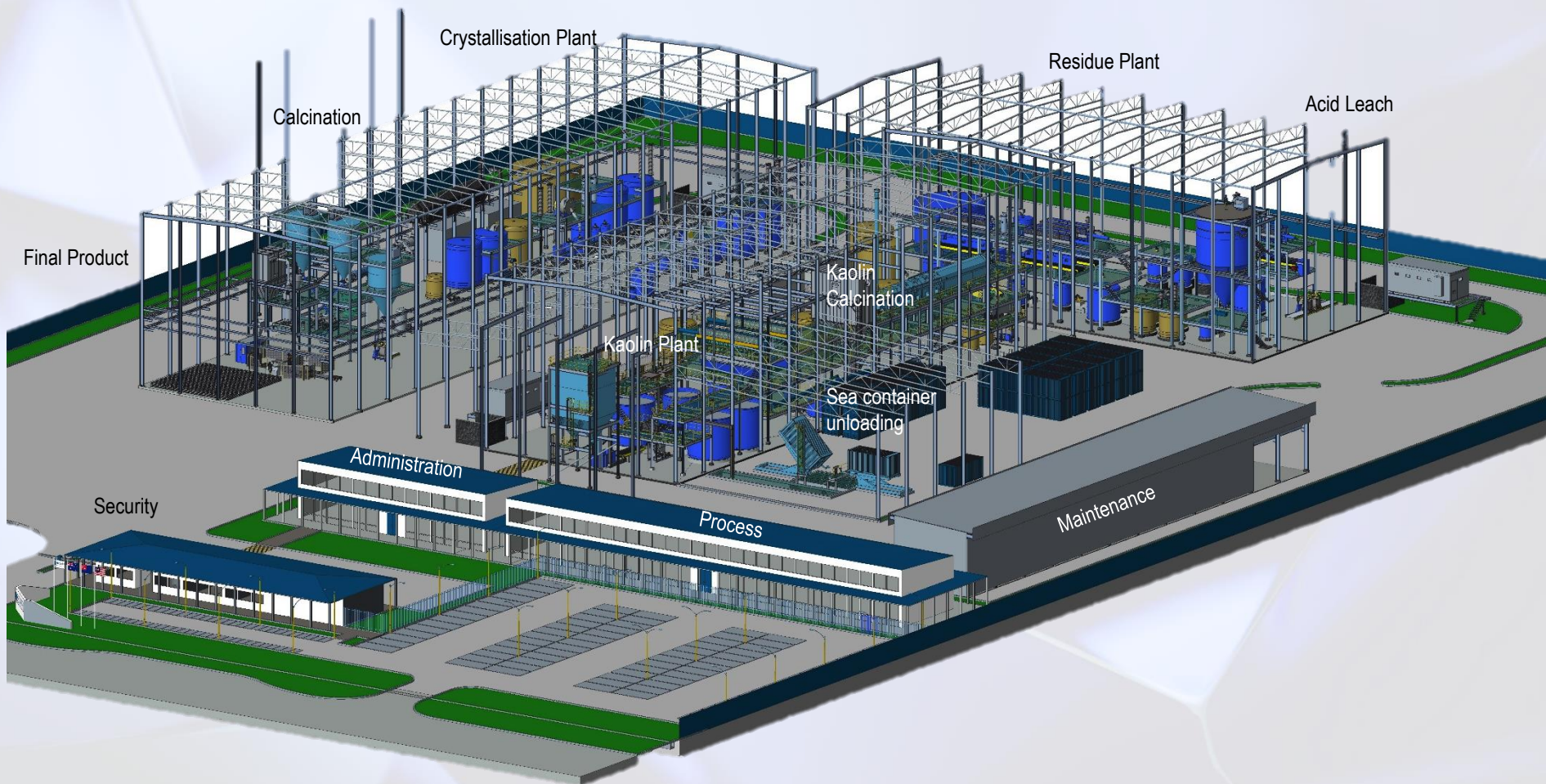
**Going
Commercial**





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Altech's HPA Plant - Malaysia





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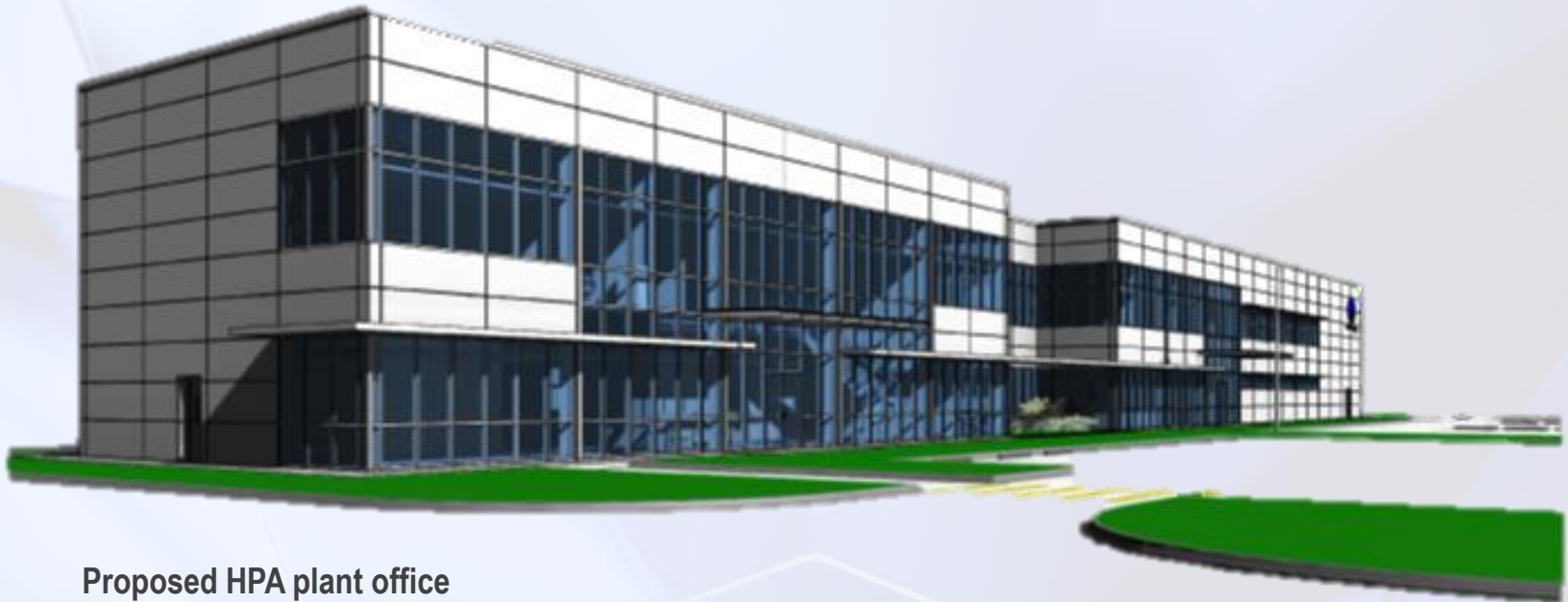
Altech's HPA Plant - Malaysia





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Altech's HPA Plant - Malaysia



Proposed HPA plant office

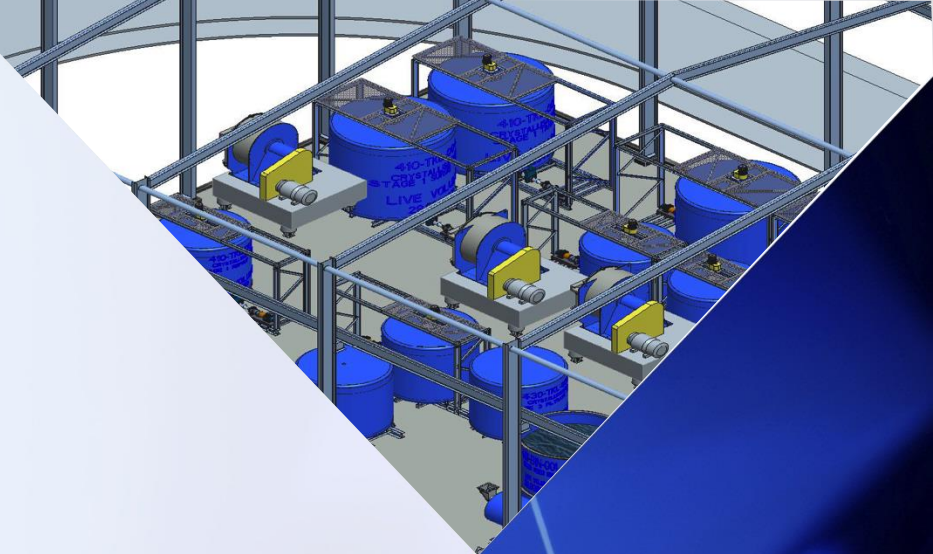


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- Capital cost estimate US\$78.7m
- Payback period 3.7 years
- Pre-tax NPV₉ of US\$357.5m
- Highly attractive IRR of 33.3%
- Operating cost of US\$9,070/t
- Sale price of US\$23,000/t
- Margin of US\$13,930/t
- EBITDA US\$55.7m pa

Refer ASX Announcement titled "Altech Improves Financial of its HPA Project with BFS Update" dated 16 March 2016.

Altech confirms that all material assumptions underpinning the production target and financial information derived from the production target continue to apply and have not materially changed.



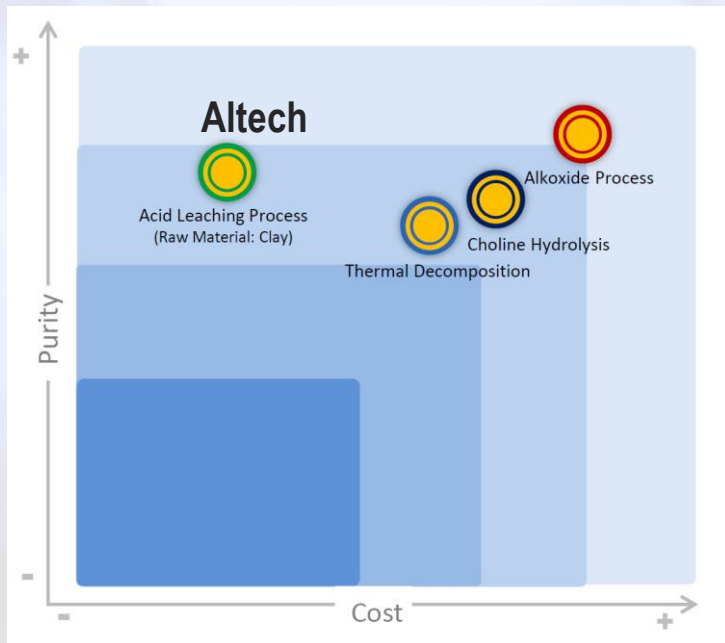
**Highly
Attractive
BFS**





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- **Competitors US\$14-17,000 /t** (Breakaway Research)
 1. We own our feedstock
 2. Main reactant HCl re-used
 3. Plant in low cost country (Malaysia)



**Bottom
Quartile
for Op Costs**

Source: Persistence Market Research "High Purity Alumina Market – Global Industry Analysis and Forecast 2016-2024"



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- Off take sales with Mitsubishi
- First ten years of HPA operations
- Secures sales for 100% of 4,000tpa HPA production
- Exclusive global distributor
- Experienced with HPA
- Strategic priority – Lithium batteries



**Mitsubishi
signs full
off take**





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- Debt funding with KfW IPEX-Bank
- 60% of plant – German suppliers
- Target of US\$70m
- Export Credit cover of US\$60m
- Target sole lender – KfW IPEX-Bank
- German M+W Group EPC contractor

**We are at the
funding
stage**





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- Independent DD consultants appointed
- Technical, legal and market consultants
- Thorough DD including site visits
- KfW DD meeting with Mitsubishi (Tokyo)
- Confirmatory pilot plant test work in South Africa, Australia and Germany
- Preliminary DD report – No fatal flaws
- Now at advanced stage

Debt Due Diligence





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Confirmatory DD Pilot Plant Tests

Australia



Acid leach test work
Simulus Laboratories



Crystalliser test work
Simulus Laboratories

**South
Africa**



Roaster test work - Drytech



Roaster internal temperature at 700°C



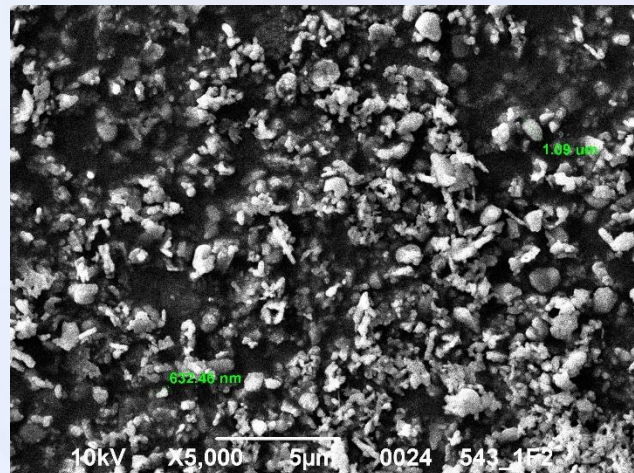
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Confirmatory DD Pilot Plant Tests

Germany



Jet mill test work – Netzsch



Jet mill test work – Netzsch

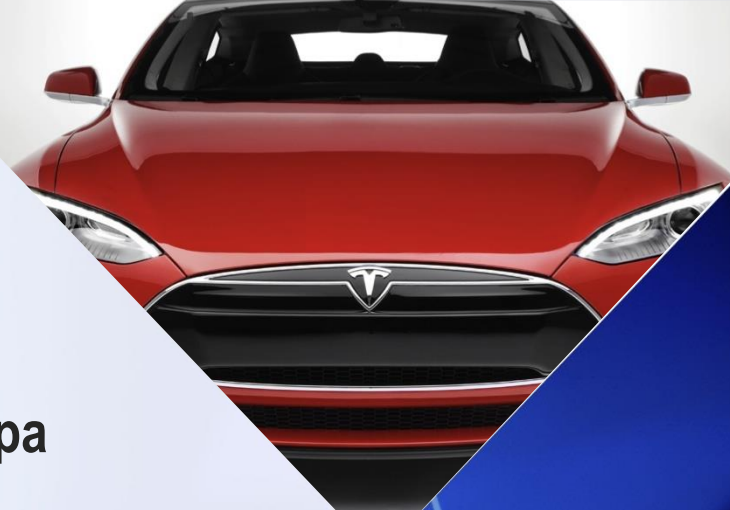


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- Annual HPA demand forecast of 86,831tpa by 2024 (est. 2016: 25,315tpa)
- Altech's strategy of focusing on 4N HPA endorsed
- HPA use in lithium-ion batteries offers incremental demand
- Altech targeting 50% sales in Japan
- Japan price of 4N HPA – US\$30,000 /t

Source: Persistence Market Research "High Purity Alumina Market – Global Industry Analysis and Forecast 2016-2024"

Market DD Study by Persistence

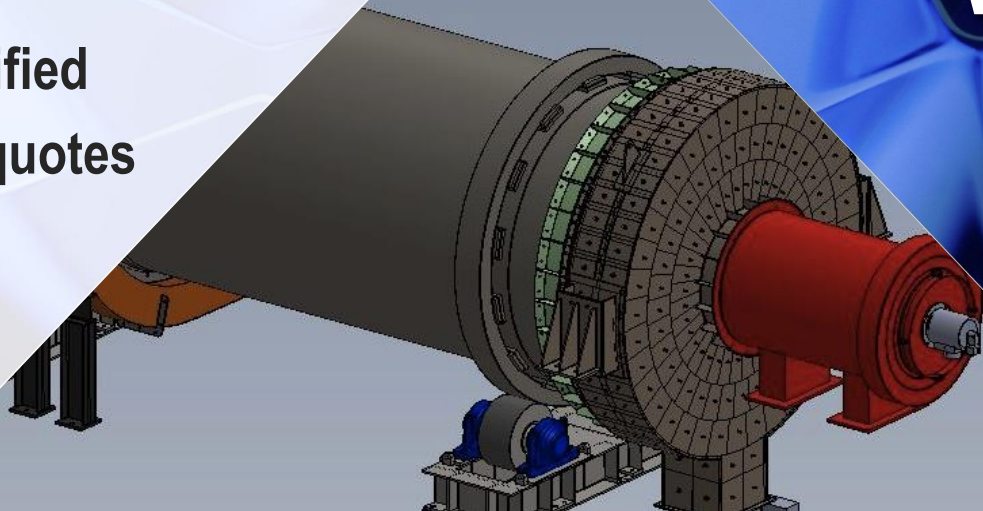




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- Detailed design at advanced stage
- 55 M+W engineers on the project
- Germany, Singapore and Malaysia
- Process plant, equipment & piping (Germany)
- Civil, buildings, electrical, instruments (Singapore)
- Overall about 90% specified
- Overall 65% in binding quotes

**Detailed
Design is
progressing
well**





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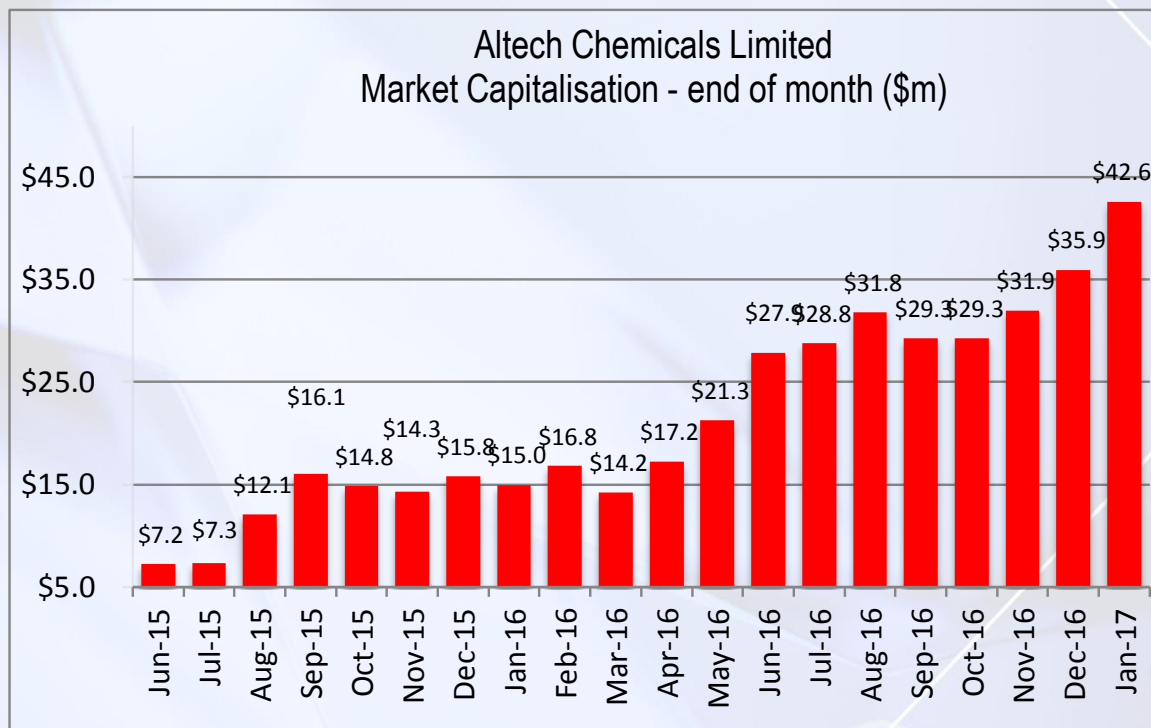
- Debt funding term sheet end Q2 2017
- Project equity Q3 2017
- Site works commencing Q3 2017
- 18 months construction
- First product due early 2019

**Timeframe
to market**





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**Altech growth
performance**

- 600% growth market cap growth
- Ave trade value \$2k /day to \$205 k /day
- 640 shareholders to 1,660 shareholders



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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 Persons Statements – Meckering Kaolin Deposit

The information in this announcement that relates to Mineral Resources and Ore Reserves is extracted from the report entitled "Maiden Ore Reserve at Altech's Meckering Kaolin Deposit" released on 11 October 2016; the report is available to view of the Company's website www.altechchemicals.com. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.