



23 June 2016

## **ALTECH PRESENTATION – 3<sup>rd</sup> INTERNATIONAL SAPPHIRE INDUSTRY TECHNOLOGY EXPO**

Altech Chemicals Limited (Altech/the Company) (ASX: ATC) is pleased to provide a revised copy its presentation for the 3<sup>rd</sup> International Sapphire Industry Technology Exhibition (Sapphire Expo) in Shenzhen, China. Slide 11 has been removed from the previously lodged presentation following discussions with Australian Securities Exchange (ASX).

The Sapphire Expo is an annual trade show that is held over three days (22 – 24 June 2016) and attracts hundreds of sapphire industry participants from the around the world. Participants include sapphire glass and wafer manufacturers, sapphire substrate producers, high purity alumina suppliers, and importantly representatives from the LED lighting and lithium-ion battery manufacturing sectors.

Altech's attendance and presentation at the expo is an opportunity for it to both showcase the advanced state of its Malaysian high purity alumina (HPA) project and to commence building international brand awareness for its proposed finished product HPA.

As previously announced, Altech has executed a 10-year off-take sales arrangement with Mitsubishi Corporation's Australian subsidiary, Mitsubishi Australia Ltd (Mitsubishi) for 100% of HPA production from its proposed Malaysian HPA plant. The current forecast demand growth profile for HPA indicates that near term future demand is well in excess of current and known planned supply capacity increases; the expo should provide the Company with useful information on industry participant perception of this dynamic and possible sector specific supply challenges.

-Ends-

For more information, please contact:

**Corporate**

Iggy Tan  
Managing Director  
Altech Chemicals Limited  
Tel: +61 8 6168 1555  
Email: [info@altechchemicals.com](mailto:info@altechchemicals.com)

Shane Volk  
Chief Financial Officer & Company Secretary  
Altech Chemicals Limited  
Tel: +61 8 6168 1555  
Email: [info@altechchemicals.com](mailto:info@altechchemicals.com)

**About Altech Chemicals (ASX: ATC)**

**Altech Chemicals Limited** (Altech/the Company) is aiming to become one of the **world's leading suppliers of 99.99% (4N) high purity alumina (HPA)** ( $Al_2O_3$ ).

HPA is a high-value, high margin and highly demanded product, as it is the critical ingredient required for the production of sapphire substrates which are used in the manufacture of LED lights, for the manufacture of alumina semiconductor wafers that are widely used in the electronics industry, and for the manufacture of scratch resistant artificial sapphire glass used for watch faces, camera lenses and by various smartphone manufacturers. There is no substitute for HPA in the manufacture of sapphire substrates, sapphire semiconductor wafers or scratchproof sapphire glass.

Global HPA demand is approximately 19,040tpa (2014) and demand is growing at an annual rate of 28%, primarily driven by the growth in LED's, as this energy efficient, longer lasting and lower operating cost form of lighting replaces traditional incandescent bulbs. HPA demand is expected to at least double over the coming decade.

Current HPA producers use an expensive and highly processed feedstock material such as aluminium metal to produce HPA. Altech has completed a Bankable Feasibility Study (BFS) for the construction and operation of a 4,000tpa HPA plant at Tanjung Langsat, Malaysia. The plant will produce HPA directly from kaolin clay which will be sourced from the Company's 100% owned kaolin deposit at Meckering, Western Australia. Altech's production process will employ conventional "off-the-shelf" plant and equipment to extract HPA using a hydrochloric acid (HCl) leaching process. Production costs are anticipated to be considerably lower than established HPA producers.

The Company is currently in the process of securing project financing with German KfW IPEX-Bank.



**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.

**Altech Chemicals Limited (ASX:ATC)**

## **Sapphire Exhibition Presentation**

***“Meeting a Sapphire Future”***

**Iggy Tan**  
**Managing Director**



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**To be a world leading producer of  
99.99% high purity alumina (HPA)**



**Our Vision**





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- **Australian ASX Listed company**
- **New producer of 99.99% HPA**
- **Sapphire and lithium battery industries**
- **High end applications**
- **Specialise in “nano” particle technology**
- **Mineral deposit in Western Australia**
- **Chemical plant in Johor, Malaysia**

**Altech  
Chemicals**





**Altech Chemicals**  
Limited

- **High quality and consistency**
- **Priority customer – Security of supply**
- **Owned feedstock – reliable supply**
- **Asia pacific – minimise holding costs**
- **State of the art packaging – less waste**
- **Batch analysis – accurate formulations**
- **Quality product tracking system**
- **Free testing service**

**Benefits of  
being an Altech  
Customer**





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- **Shortage of HPA supply**
- **Demand will outweigh new supply**
- **Shift to “nano” particle technology**
- **Upward pressure on pricing**
- **Supply cannot be guaranteed by others**
- **Altech to be dominant new supplier**

The background of the slide is a collage of images related to LED lighting. In the top right, there are several small LED light bulbs. In the bottom right, there is a large, detailed image of an industrial LED fixture with a complex, grid-like lens structure. The overall color scheme is dominated by blue and white.

**Future of  
HPA**



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# Altech's Differentiation

**Current HPA Producers**



Bauxite

**Alumina Refinery**



Smelter Grade Alumina 99.8%

**Alumina Smelter**



Aluminium Metal

**US\$3,000 per tonne**

**Aluminium Dissolution**



99.99% HPA



Aluminous Clay

**ALTECH HPA PLANT**

**One Single Process Step**



99.99% HPA



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- Processed by mother nature
- Very low Iron (Fe) due to weathering
- Silica is non reactive – easily removed

	Bauxite Darling Range *	Canadian HPA Project	Altech HPA Project
Al <sub>2</sub> O <sub>3</sub> (%)	34.5	22.77	30.5
SiO <sub>2</sub> (%)	21.5	53.29	56.3
Fe <sub>2</sub> O <sub>3</sub> (%)	21.2	8.36	0.7
TiO <sub>2</sub> (%)	2.00	0.98	0.7
K <sub>2</sub> O (%)	0.24	3.41	0.1
NaO (%)	0.005	1.42	0.1

Typical bauxite deposit

Altech aluminous clay deposit

# Low-impurity Aluminous Clay Feedstock



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- Use a standard HCl leach process
- Developed in 1980's by alumina industry
- Couldn't compete with Bayer SGA costs
- But great at producing HPA (no sodium ions)
- However little demand of HPA in 1980s
- Demand of HPA is here today

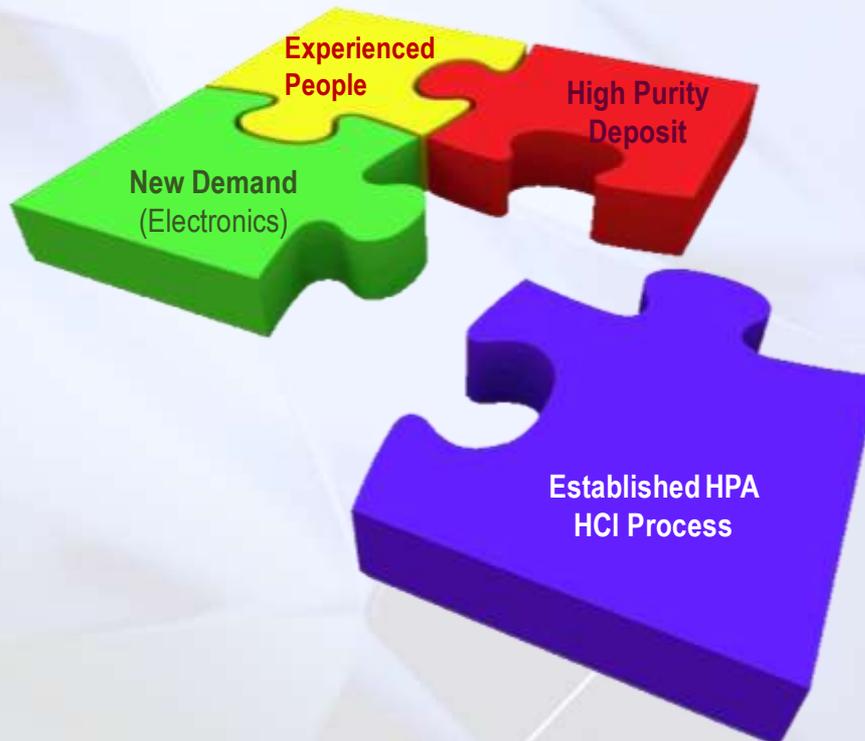
## Altech's HPA Process





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**New HPA Demand + Established Process + Great  
Deposit + Experienced People  
→ Shareholder Value**



**Altech  
Business  
Strategy**

*“the last piece of the  
puzzle is in place”*



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- **Lower quartile costs**
- **Kaolin feedstock shipped from WA**
- **Chemical industrial park**
- **Sea container ports**
- **Site secured**
- **Malaysian government incentives**

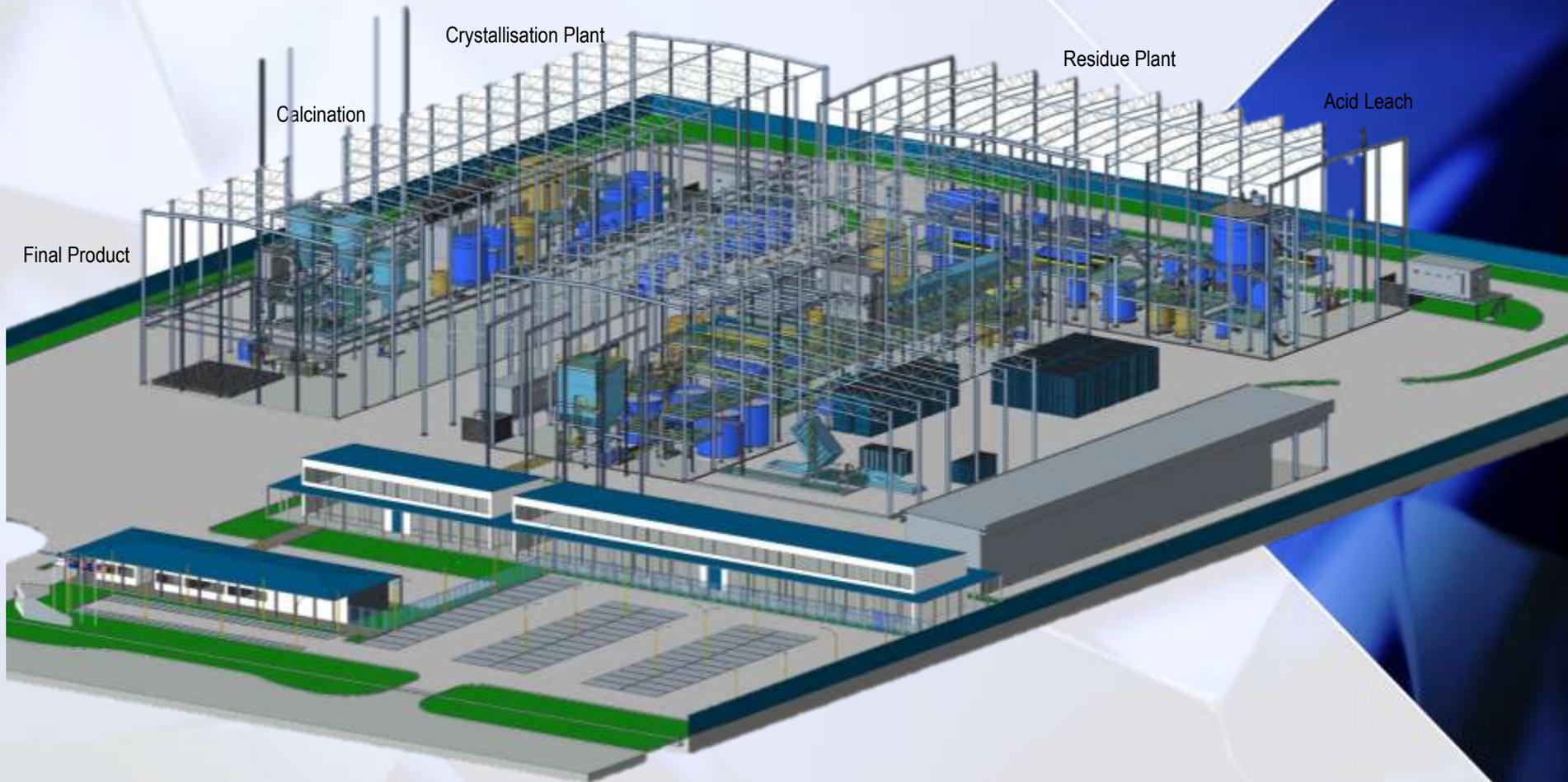
**HPA Site  
Location  
Johor**





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# Altech's HPA Plant - Malaysia





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## **High End Applications**

Highest grade 4N HPA for the sapphire and lithium battery markets.

## **Guaranteed Supply**

Become a priority customer - guaranteed supply during times of worldwide HPA shortage

## **Quality & Consistency**

Highly-automated, continuous German process plant - consistency of product quality



**Customer  
Benefits**





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## **Product Supply Reliability**

Altech owns its feedstock - reliable and consistent product supply is guaranteed

## **Asia-Pacific Supplier**

Based in Asia, close to customers resulting in lower inventory costs

## **State-of-the-art Packaging**

Fully automated German packaging ensures clean deliveries and no losses



**Customer  
Benefits**





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## **Product Analysis**

Individual batch analysis allows accurate batch formulations for customers

## **Expansive Distribution Network**

Utilises Mitsubishi's distribution network in over 90 countries worldwide

## **Product Tracking System**

Batch analysis accessible anywhere around the world via secured online customer portal



**Customer  
Benefits**





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## **Free Testing Service**

Provides customers with free testing anywhere around the world

## **Monthly SPC Analytical Reports**

Regular statistical process control data can be assessed by all customers

## **Professional Technical Service**

Highly-qualified technical personnel from Altech and Mitsubishi will be available to respond to customer queries



**Customer  
Benefits**





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# Product Specification

CHEMICAL CONTENT			
		Typical	Specs
Alumina	Al <sub>2</sub> O <sub>3</sub>	99.99%	>99.99%
Silica	Si	4 ppm	<20 ppm
Sodium	Na	2 ppm	<10 ppm
Magnesium	Mg	1 ppm	<10 ppm
Calcium	Ca	0.5 ppm	<10 ppm
Iron	Fe	3 ppm	<10 ppm
Copper	Cu	1 ppm	<10 ppm

Crystal Structure		α
Appearance		White Powder
Mean Particle Size (D <sub>50</sub> )	μm	0.4-0.7
Loose Bulk Density	g/cm <sup>3</sup>	0.3-0.5
Tapped Bulk Density	g/cm <sup>3</sup>	0.6-0.9
BET Surface Area	m <sup>2</sup> /g	4-8



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- Debt funding finalised end Q4 2016
- Site works commencing Q2 2017
- First product due early 2019

**Timeframe to  
market**





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