

## **ATC: ALTECH CHEMICALS LTD'S MECKERING, WA KAOLIN DEPOSIT, PROCESSED AT ITS MALAYSIA PLANT USES ITS OWN TECHNOLOGY TO SUPPLY HUGE AND GROWING DEMAND FOR HPA IN LED PRODUCTS - LIGHTS, SMARTPHONES, OTHER NEW TECH MANUFACTURES. FUNDING IN PLACE, PRESTIGIOUS MANAGEMENT**



Altech Chemicals Ltd (ATC), listed on January 27, 2010 as Australian Minerals and Mining Group (AKA) with a varied gold and base metals portfolio, under managing director, then and now, of highly regarded Iggy Tan. ATC is now focussed on its High Purity Alumina (HPA) project at Meckering in Western Australia.

The Meckering deposit was earlier owned by Minerals Corporation Ltd (MSC) after early exploration by Western Mining (that was acquired by BHP) - when demand for HPA was non existent.

While simulated ruby and diamond gemstones are made from HPA, the huge demand is in new-energy manufacturing, with LEDs leading demand.

In a presentation to RIU Explorers Conference on February 24, managing director Iggy Tan pointed to the fast emerging use of High Purity Alumina (HPA).

Global demand was 19,040 tpa in 2014 expected to increase to 48,230 tpa by 2018, growing at a CAGR (Compound Annual Growth Rate) of 25%, driven by LED growth (Source quoted was Technavio Research, 2014-2018 Global High-purity Alumina Market").

Altech has a 4000 tpa High Purity Alumina plant in Malaysia, well positioned to service the Asia Pacific Region, that accounts for 70% of HPA global demand.

Operating costs are 40% lower than in Australia with the capital cost expected to be 50/60% lower.

The Bankable Feasibility Study forecast operating profit for Altech Chemicals is \$US59.4 million per annum with a payback period of 5 years.

Iggy Tan said in the presentation the six largest HPA producers to date are 3 Chinese, 1 Japanese, 1 South African and 1 French.

The ATC group's advantage is its aluminous clay deposit at Meckering in Western Australia that has a 65 million tonne JORC compliant resource and is located 130 km from the Fremantle Port.

The deposit has a very low iron content due to weathering with the silica content non reactive and easily removed.

On March 9 Altech terminated the agreement with Dana Shipping and Trading SA that granted Dana the exclusive right to mine up to 10Mt of kaolin from the company's Meckering kaolin deposit, as the First Condition had not yet been satisfied.

Altech continues to focus on finalising the detailed design and securing funding for the construction of its High Purity Alumina project.

## WHAT THE ANALYSTS SAY

On February 10 DJ Carmichael analyst Paul Adams in a comprehensive report issued a "speculative buy" recommendation for Altech Chemicals Ltd. He said Altech Chemicals offers a unique opportunity in high-tech chemicals. It is "developing a vertically integrated High Purity Alumina (HPA) project. ATC is unique in that it uses a process to convert aluminous clay, sourced from its own quarry in Western Australia, to HPA in a simple, highly cost effective process with operating costs a fraction of its larger, more established peers".

He added ATC plans to become one of the world's largest producers of HPA, that is being used in a growing number of high tech applications and is set to have a CAGR (Compound annual growth rate) of 19.7% to 2021.

"HPA (99.9% Al<sub>2</sub>O<sub>3</sub>) is sold as a white powder and is the base material for the manufacture of sapphire substrates, scratch proof sapphire glass and as a coating on separators used in lithium-ion batteries. Most HPA is used in the manufacture of LED's, alumina semi-conductors and phosphor TV screens but it is experiencing a wider and growing use in smartphones and Li-ion battery applications amongst others (aerospace, medical, defence). Government Policy and public awareness on energy saving is in part driving the increased usage of these products. ATC is developing a large HPA project with its own source of feedstock from a quarry in WA and its own HPA plant based in Malaysia .."

The analyst added most existing producers of HPA are small business units in very large industrial conglomerates, using processing routes that re-refine aluminium metal that was produced from bauxite via the Bayer Process to produce HPA. This is expensive and very energy intensive. More recently, aluminium waste products are being used as a feedstock, but ATC has a sustainable competitive advantage in that it will use an inexpensive, white, very pure aluminous clay as a feed source.

**Project financing:** The analyst said ATC estimates that approximately \$US40 million of the estimated total \$US77 million project capital cost will qualify for ECA (Export Credit Agency) insurance cover under German-backed project finance export guarantees. An additional \$15 million of senior debt financing will be required.

The analyst said, "Unlevered free cash flows are robust with the HPA project generating an IRR of 29% with a payback period of 5 years".

**"Recommendation and Valuation:** We place a Speculative Buy recommendation and our risked valuation of 41c a share".

## OTHER ANALYST REPORTS INCLUDE

In December 2015 ATC tabled a report by Dr Richard Flook in Benchmarkminerals.com that was headlined, " High purity alumina has flown under the radar, but it has been the critical raw material fuelling significant growth in the LED market, identified last month as one of Goldman Sachs' low carbon economy industries to watch.

The surge in LED demand has seen the technology take a majority market share from the traditional light bulb in little over a decade. But it is not the only role the specialist chemical plays in disruptive technology".

Australian Resource Magazine in September 2015 under " Innovation and Technology" said in part, " US\$23,000 per tonne, and Altech's recently completed bankable feasibility study (BFS) sets out the company's plans to construct a 4000-tonnes per annum HPA plant at the Tanjung Langsat Industrial Park, Johor, Malaysia. In Malaysia, with its attractive corporate tax rate of 25 per cent and lower overall operating costs, Altech expects to produce finished product HPA at an 'all-in cash cost' of approximately US\$8140 per tonne (for a gross cash margin of US\$14,860 per tonne) using an aluminous clay feedstock that will be sourced from the company's 100-percent-owned kaolin deposit at Meckering, Western Australia.

The financial results from the BFS are compelling: total capital costs for the project are forecast at US\$76.9 million; project payback is 3.8 years, an internal rate of return of 30.3 per cent; annual EBITDA at full production of US\$59.4 million; and a net present value of US\$326 million applying a conservative 10 per cent discount rate. The company has assumed a project construction period of approximately two years, commencing in the first quarter of 2016, which will see first product hitting the HPA market in the first quarter of 2018, by which time annual global HPA demand will have grown a staggering 2.5 times to approximately 48,000 tonnes per annum, from its current base of 19,040 tonnes per annum. It is the unique properties of Altech's Meckering kaolin deposit, which is low in impurities (especially iron and sodium), combined with the three stage direct kaolin to HPA hydrogen chloride (HCl) leach and crystallisation process that recycles HCl, which will enable the company to recover alumina at high purity levels at such low cost".

## Financials

### Code: ATC

Last Traded price (cents)	10
Shares Issued (m's)	112.0
Market Cap (\$m's)	11.2

Year ended June 30, Values in \$000's

INCOME	2015	2014
Op Revenue	0	0
Op Profit (loss)	(1,392)	(3,738)
Net profit (loss)	(1,392)	(3,738)
(Loss)PS (Cents)	(0.012)	(0.035)

2,500,000	Ex. \$0.10, Expiry 30-06-2016
1,000,000	Ex. \$0.20, Expiry 18-12-2017
1,000,000	Ex. \$0.25, Expiry 18-12-2017
1,000,000	Ex. \$0.30, Expiry 18-12-2017
600,000	Ex. \$0.20, Expiry 31-01-2017
3,800,000	Performance Rights: Employees & Consultants
10,000,000	Performance Rights: Managing Director
5,250,000	Performance Rights: Directors

BALANCE SHEET	2015	2014
Current Assets	1,549	1,967
Non Current Assets..	2,231	1,345
Current Liabilities	1,044	235
Non Current Liabilities	0	0
Net Assets & Shareholders'		
Funds	2,736	3,077
Intangibles	2,204	1,338
Net Tangible Assets	532	1,739
Gearing (Net of Cash) %	8.1 nil	
NTA per share (cents)	0.5	1.6
Shares Issued (m's)	112.0	107.8

Cash Flows:	2016 Int.	2015	2014
Cash on hand (at open)	575	1,784	2,827
Operating Activities	(756)	(786)	(568)
Investing	(3)	(1,546)	(518)
Financing Activities	1,183	1,123	43
Exchange Rate Impacts			
Cash on hand at Year end	999	575	1,784

## Directors

**Ignatius (Iggy) Tan**, Bsc MBA , Managing Director, Appointed: 25 August 2014

Mr Iggy Tan became the Company's managing director in August 2014. Having been involved in the commissioning and start-up of seven resource projects in Australia and overseas, including high purity technology projects, Mr Tan is an accomplished project builder and developer. Mr Tan previously held Managing Director positions at ASX listed Kogi Iron Limited (23-08-2013 to 1-5-2014) and Galaxy Resources Limited (11-11-2011 to 11-06-2013).

**Luke Frederick Atkins**, LLB, Non-Executive Chairman, appointed: 8 May 2007

Mr Atkins is the co-founder and non-executive director of Bauxite Resources Limited (ASX: BAU). Mr Atkins was a former director of Reclaim Industries Limited. He brings to the board extensive experience in the areas of mining, exploration, and corporate governance.

**Peter Bailey**, Independent Director, appointed: 8 June 2012

Mr Peter Bailey is a highly experienced and qualified engineer with over 40 years' experience in the mining and industrial chemical production industry. Mr Bailey spent the majority of his career in the alumina chemicals and alumina refining industries. He was previously chief executive officer at Sherwin Alumina, an alumina refinery based in Texas, USA.

Prior to Sherwin, in 1998 Mr Bailey was president of Alcoa Worldwide Chemicals industrial chemicals department. He was responsible for managing the company's 13 alumina plants that were located in eight countries, with combined annual revenue of approximately \$700 million. In 1996 Mr Bailey was president of Alcoa Bauxite and Alumina and was responsible for 8 alumina plants outside of Australia. He was also the chairman of the Alcoa Bauxite joint venture in Guinea, Africa. Mr Bailey has not held any other listed company directorships in the last 3 years.

**Daniel Lewis Tenardi**, Non-Executive Director, appointed 17 September 2009

Mr Dan Tenardi is a highly experienced global resource executive with over 40 years in the global mining and processing sectors. During his extensive career, Mr Tenardi spent 13 years at Alcoa's alumina refinery in Kwinana as well as the company's bauxite mines in the Darling Ranges of Western Australia.

He was the founding Managing Director of Bauxite Resources Limited (ASX: BAU) where he led the rapid growth of the company from its initial exploration phase, expansion of land holdings, to the commencement of trial shipments and securing supportive strategic partnerships with key Chinese partners. Mr Tenardi is currently non-executive independent director of Australian iron ore producer, Grange Resource Limited (ASX: GRR). He was previously CEO of Ngarda Civil & Mining and has also held senior executive and operational roles at CITIC Pacific, Alcoa, Roche Mining and Rio Tinto.

Company Secretary and Chief Financial Officer: **Mr Volk**, appointed November 12 2014

Mr Volk is an experienced Company Secretary and Chief Financial Officer having most recently served in these positions for ASX listed companies Kogi Iron Limited (2012 to present), African Iron Limited (2011-2012) and Emmerson Resources Limited (2007- 2011). His experience also includes senior management roles with Kaltim Prima Coal (Indonesia) and Placer Dome (Indonesia and Papua New Guinea). Mr Volk is an active member of the Governance Institute of Australia and has in excess of 25 years of experience in the mining and resources industry.

## Major shareholders

Lake Mceod Gypsum 24.42%  
Australian Mineral Investment 12.41%  
Waylen Bay Capital Pty Ltd 7.76%  
Mrs Judith Melissa Tan 6.21%

The top 20 shareholders hold 84.35% of the company.

## **CWE: CWE HAS HAD A GREAT YEAR - NOW COMMERCIAL WITH SIGNIFICANT NEW ORDERS, WELL CAPITALISED AND WITH A GREAT FUTURE AHEAD - BUT YOU WOULDN'T KNOW IT FROM THE SHARE PRICE!**

Carnegie Wave Energy Ltd listed in 1993 as Carnegie Corporation Ltd, a spin off from oil and gas company Hardman Resources, changing name and code to Carnegie Wave Energy in 2010 from which time it has been focussed wholly on advancing its CETO technology (named after a Greek goddess of the sea!).

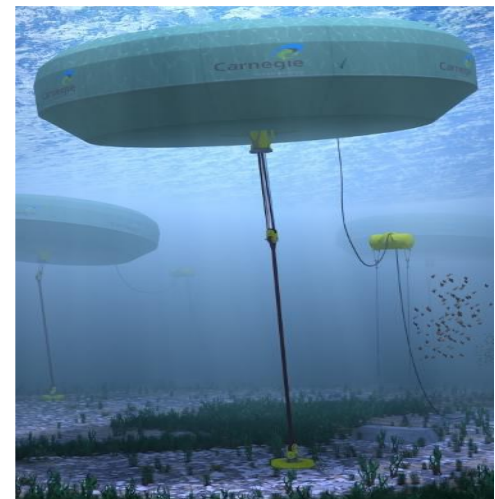
The initial CETO technology was invented by prolific Western Australia inventor Alan Burns. Carnegie acquired a pre-emptive over his technology, held in Renewable Energy Holdings Plc, in November 2001. Alan Burns retains a 3.9% stake in CWE.

CWE today has a CETO IP portfolio including 9 patent families ranging in maturity with 35 currently granted patents and over 100 patents pending.

The company over the years has won numerous awards in Australia and elsewhere and much positive press.

In his presentation on March 7, Managing Director and CEO Dr Michael Ottaviano highlighted Bloomberg New Energy Finance, 2016 statement, "Of the eight leading wave companies, four have gone bankrupt, one was folded by its owner, one has scaled back its activities drastically, one has had serious setbacks and one (**Carnegie Wave Energy**) has made considerable progress with its technology".

CWE has successfully secured several major grants over the years to develop its impressive technology.



Wave power is dependable and pollution free and can be used to produce either electricity or desalinated water, or both together in any combination. CWE's CETO 5 off Garden Island, Western Australia, is the first wave power module in the world to be connected to grid.

## **The latest CETO models, CETO 5 and CETO 6 are commercial:**

The first CETO 6 to begin construction in 2016 at Garden Island, WA. CETO 6 will use full sized machines each of 1MW capacity at Garden Island, in partnership with Western Power, will begin construction this year. It will incorporate the first wave based micro grid incorporating wave energy, solar P/V and battery storage.