

24 April 2018

Altech Chemicals (ATC)

BUY **Share Price: A\$0.17**

Altech leads HPA peers

Target Price: A\$0.41

Following Altech's success, a peer group of high purity alumina (HPA) developers has emerged on the ASX. The peers include Hill End Gold (HEG.ASX), FYI Resources (FYI.ASX) and Collierina Cobalt (CLL.ASX). Their emergence is positive as it provides critical mass and raises awareness of this robust thematic. Altech remains unquestionably the most advanced developer of the group and has several key advantages in the race to market. We maintain our BUY rating and target price of A\$0.41/sh.

Altech Leads the HPA Pack

- Altech has a significantly advanced project. All the necessary approvals, permits and engineering work has been completed through a 3.5 year process that was initiated by Iggy Tan since his appointment as MD in Aug-2014.
- In contrast the peer group has recently released resource statements and are all due to release PFS studies in Q2'18. If Hill End, FYI and Collierina follow a similar timeline to Altech, they will not be development ready until Sep-2021.

Difference in Deposits

- The value driver of these HPA projects is in the plant, but the deposit does help. Kaolin is plentiful and the kaolin deposits for Altech, Hill End and FYI are similar although subtle differences are apparent.
- Each resource is reported on a screened basis, with Altech reporting the highest screen size (~300µm) with a 69% yield. Hill End and FYI use a much smaller screen size of ~63µm and ~45µm with yields of 43% and 84% respectively. This implies Altech's deposit is easier to beneficiate which would have a positive impact on processing costs.

Supportive Registers

- All the HPA developers have attracted supportive registers, which in turn has raised awareness of the broader peer group.
- Altech and Collierina boast industrial conglomerates whilst FYI and Hill End have high profile sophisticated investors. Melewar International and engineering firm SMS group hold 12% and 9% of Altech respectively with each incentivised to see the project in production. Hill End has mining identity Tolga Kumova with 7% and FYI attracting Regal and Paragon funds managers with 13% and 8% respectively.

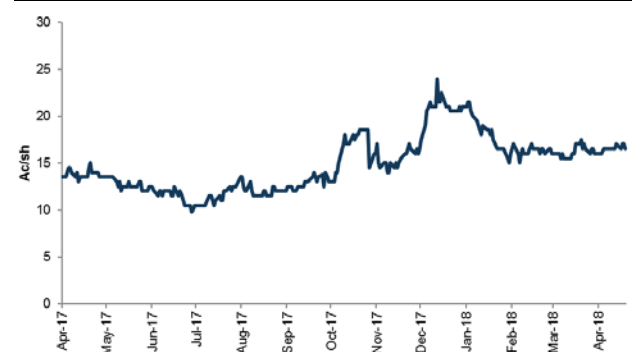
Company Data

Shares – ordinary (M)	427
Market capitalisation (\$M)	73
12 month low/high (\$)	0.10 / 0.27
Average monthly turnover (\$M)	1.9
GICS Industry	Materials

Financial Summary (fully diluted/normalised)

Year End	June	2020F	2021F	2022F	2023F	2024F
Revenue (\$m)	0	0	76	140	174	
Costs (\$m)	1	1	32	46	53	
EBITDA (\$m)	-1	-1	44	94	121	
NPAT (\$m)	-2	-8	6	35	56	
EPS (cps)	-0.4	-2.0	1.4	3.5	5.6	
EPS growth (%)	-815%	-365%	169%	159%	57%	
PER (x)	na	na	12	5	3	
Cashflow (\$m)	-2	-8	30	81	113	
CFPS (cps)	0	-2	7	8	11	
PCFPS (x)	-39	-8	2	2	1	
Enterprise Value (\$m)	179	319	295	220	113	
EV / EBITDA (x)	-213	-380	7	2	1	
Payout ratio (%)	0%	0%	0%	0%	0%	
Dividend (cps)	0	0	0	0	0	
Yield (%)	0	0	0	0	0	
Franking (%)	0	0	0	0	0	

ATC – performance over one year



Disclosure and Disclaimer

This report must be read with the disclosure and disclaimer on the final page of this document.

Analysis

Altech Chemicals Ltd (ATC)

24-Apr-18
Year End June

Share Price	(\$)	A\$0.17
Iss. Shares	(M)	426.5
Dilution	(M)	572.2
Fully Diluted	(M)	998.7
Mkt Cap.	(\$M)	A\$73M

PROFIT & LOSS		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F									
Revenue	A\$M	0	0	0	0	76	140	174	180	Reserve								
Operating Costs	A\$M	0	0	0	0	31	45	52	56	HPA								
Exploration	A\$M	0	0	0	0	0	0	0	0	Tonnes								
Other	A\$M	5	1	1	1	1	1	1	1	Grade (Al2O3 %)								
EBITDA	A\$M	(5)	(1)	(1)	(1)	44	94	121	123	Contained Al2O3 (kt)								
D&A	A\$M	0	0	0	0	21	31	33	31	kt								
EBIT	A\$M	(5)	(1)	(1)	(1)	23	63	87	92	HPA								
Net Interest	A\$M	(0)	(2)	2	11	15	13	8	2	Production								
Pre-Tax Profit	A\$M	(5)	0	(3)	(12)	8	51	79	89	Ore Processed								
Tax	A\$M	(1)	0	(1)	(4)	2	15	24	27	kt								
Net Profit	A\$M	(3)	0	(2)	(8)	6	35	56	63	Ore Grade								
Abnormal	A\$M	0	0	0	0	0	0	0	0	%								
Reported Profit	A\$M	(3)	0	(2)	(8)	6	35	56	63	Overall Recovery								
Dividends Paid	A\$M	0	0	0	0	0	0	0	0	kt								
Adjustments	A\$M	0	0	0	0	0	0	0	0	HPA Produced								
										kt								
										HPA Sold								
										kt								
										A\$'000/t								
										A\$'000/t								

CASHFLOW		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Net Op Cash Flow	A\$M	(5)	(1)	(1)	(1)	44	94	121	123
Net Interest	A\$M	0	2	(2)	(11)	(15)	(13)	(8)	(2)
Tax Paid	A\$M	1	(0)	1	4	1	0	0	(14)
Op Cash Flow	A\$M	(3)	0	(2)	(8)	30	81	113	107
Net Capex	A\$M	0	(132)	(132)	(132)	(6)	(6)	(6)	(6)
Exploration	A\$M	0	0	0	0	0	0	0	0
Inv Cash Flow	A\$M	0	(132)	(132)	(132)	(6)	(6)	(6)	(6)
Free cash flow	A\$M	(3)	(132)	(134)	(141)	24	76	107	101
Net Borrowings	A\$M	0	0	203	51	(20)	(70)	(80)	(76)
Dividends	A\$M	0	0	0	0	0	0	0	0
Equity Issues	A\$M	17	143	0	0	0	0	0	0
Other	A\$M	0	0	0	0	0	0	0	0
Fin Cash Flow	A\$M	17	143	203	51	(20)	(70)	(80)	(76)
Net Cash Flow	A\$M	14	11	69	(90)	4	6	27	24

BALANCE SHEET		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Cash	A\$M	15	26	95	5	9	15	41	66
Other Current	A\$M	0	0	0	0	0	0	0	0
Cur Assets	A\$M	15	26	95	5	9	15	42	66
Fixed Assets	A\$M	23	155	288	420	426	432	438	444
Exploration	A\$M	0	0	0	0	0	0	0	0
Other	A\$M	0	0	0	0	0	0	0	0
Non Cur Assets	A\$M	23	156	288	421	427	433	438	444
Total Assets	A\$M	39	182	383	426	436	448	480	510
Borrowings	A\$M	0	0	0	0	0	0	0	0
Payables	A\$M	7	7	7	7	7	7	7	7
Other	A\$M	0	0	0	0	0	0	0	0
Cur Liab	A\$M	7	7	7	7	7	7	7	7
Borrowings	A\$M	0	0	203	254	234	164	84	8
Provisions	A\$M	0	0	0	0	0	0	0	0
Other	A\$M	0	0	0	0	0	0	0	0
Non Cur Liab	A\$M	0	0	203	254	234	164	84	8
Total Liabilities	A\$M	7	7	211	262	242	172	92	15
Total Equity	A\$M	31	175	173	164	195	276	389	495

RATIO ANALYSIS		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
EPS	¢	(0.8)	0.1	(0.4)	(2.0)	1.4	3.5	5.6	6.3
PER	x	na	287.1	na	na	12.4	4.8	3.1	2.7
EPS Growth	%	17%	108%	-815%	-365%	169%	159%	57%	12%
CFPS	¢	(0.8)	0.1	(0.4)	(2.0)	7.1	8.2	11.3	10.7
PCFR	x	na	287.1	na	na	2.4	2.1	1.5	1.6
DPS	¢	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yield	%	0%	0%	0%	0%	0%	0%	0%	0%
Payout Ratio	%	0%	0%	0%	0%	0%	0%	0%	0%
Gearing ND/E	%	-48%	-15%	63%	152%	116%	54%	11%	-12%
Interest Cover	x	18.5	0.8	na	na	1.6	5.0	10.9	38.5
EBITDA Margin	%	na	na	na	na	58.2	67.2	69.4	68.3
EBIT Margin	%	na	na	na	na	30.7	45.1	50.4	51.0
Return On Assets	%	(12.8)	(0.7)	(0.2)	(0.2)	5.4	14.1	18.2	18.0
Eff Tax rate	%	30%	30%	30%	30%	30%	30%	30%	30%

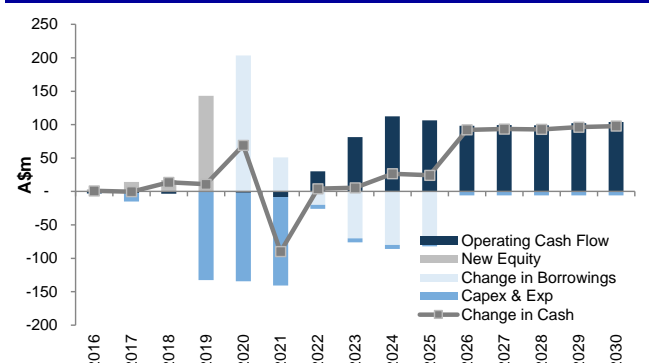
REVENUE		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
HPA Project	A\$M	0	0	0	0	76	140	174	180
Total	A\$M	0	0	0	0	76	140	174	180

OPERATING COSTS		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Meckering (Mine)	A\$M	0	0	0	0	3	0	0	3
Direct Processing	A\$M	0	0	0	0	17	28	32	33
Transport	A\$M	0	0	0	0	2	3	3	4
C1 Cash Cost	A\$M	0	0	0	0	26	37	43	47
Royalties	A\$M	0	0	0	0	5	8	9	9
Corporate	A\$M	0	0	0	0	0	0	0	1
Total	A\$M	0	0	0	0	36	53	62	66

CAPEX		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Project	A\$M	0.0	132.4	132.4	132.4	0.0	0.0	0.0	0.0
Sustaining	A\$M	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
Total	A\$M	0.0	132.4	132.4	132.4	6.0	6.0	6.0	6.0

ASSUMPTIONS		2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Exchange Rate	A\$/US\$	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Interest Paid	%	3%	3%	3%	3%	3%	3%	3%	3%
Interest Rec	%	2%	2%	2%	2%	2%	2%	2%	2%
Diesel Price	A\$/L	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Gas Price	\$/GJ	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
HPA Price	US\$/t	30000	30000	30000	30000	30000	30000	30000	30000
HPA Price	A\$/t	40000	40000	40000	40000	40000	40000	40000	40000

CASH FLOW FORECASTS INCL DEBT & EQUITY



NPV (+1Yr)		AS\$M	A\$/sh.
HPA Operations		386	\$0.39
Corporate costs		-6	-\$0.01
Net Cash (Debt)		26	\$0.03
Total		406	\$0.41

Source: Petra Capital

HPA Becoming a Sector

As the first HPA developer on the ASX, Altech was a pioneer, but it now has three other developers following in its path; Hill End Gold (HEG.ASX), FYI Resources (FYI.ASX) and Collierina Cobalt (CLL.ASX). In this note we look at how these peers compare.

Hill End and FYI can be compared directly to Altech. The projects are all based on deposits of kaolinite, which is an aluminium rich clay mineral and they all propose to convert this to HPA through a hydrochloric acid (HCl) leach process. Collierina Cobalt is different, it is based on a nickel laterite, which has much lower grades of aluminium and will use a counter current atmospheric leach (CCAL) process to produce HPA along with co-products of scandium, nickel, cobalt and manganese.

Altech has been through a lengthy process of studies, approvals, permitting and third party due diligence led by Iggy Tan, over a 3.5 years period. Altech has secured US\$190m of debt funding by German government owned KfW IPEX-Bank towards the US\$298m capex and has commitment by SMS group, a leading construction engineering firm for a fixed price EPC contract that guarantees throughput, quality and assumes commissioning risk.

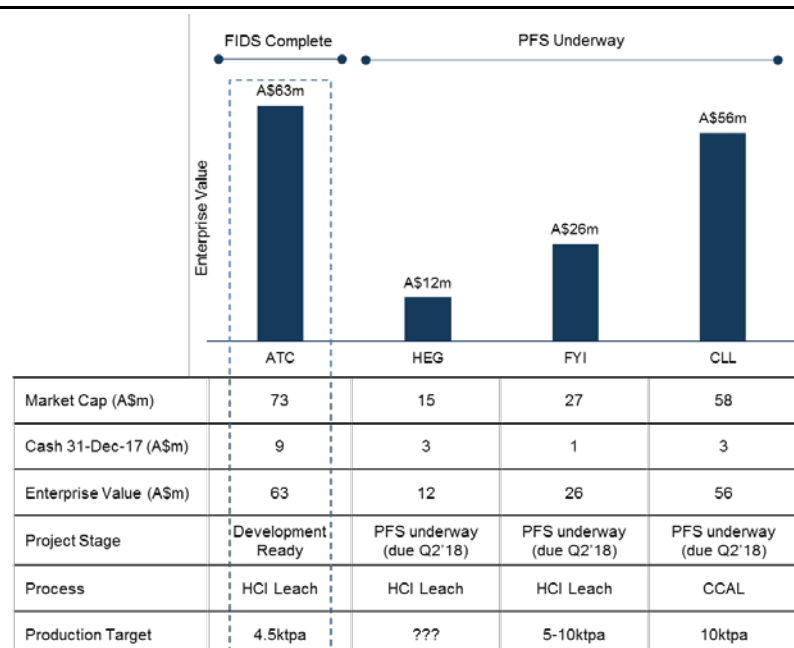
In contrast, the peers have only just released resource statements. If these peers follow a similar timeline to Altech they will not become development ready until Sep-2021.

Corporate

Altech and Collierina have similar enterprise values (Figure 1) despite Altech being development ready and Collierina still at resource stage. Altech had cash of A\$9m at 31-Dec-17 with Hill End, FYI and Collierina having cash of between A\$1m and A\$3m.

- Altech's cash balance of A\$9m at 31-Dec-17 provides more than sufficient cover for overheads and some detailed design before the full financing package is due to be finalised in mid-2018.
- Hill End's cash balance of A\$3m at 31-Dec-17 is sufficient to complete the PFS due in Q2'18 and begin the DFS study. The company raised A\$3.8m in Nov-17.
- FYI underwent a A\$3m capital raise in Feb-18 on top of a pre-existing A\$0.9m and is now fully funded to complete its PFS and start the BFS with all associated project activities.
- Collierina's cash balance of A\$3m at 31-Dec-17 is sufficient to complete the PFS due in Q2'18. The company raised A\$3.5m in Nov-17.

Figure 1: Enterprise Value of HPA developers



Source: Company Reports, Petra Capital

Register

The registers for Altech and Collerina (Figure 2) are similar in that they both contain large industrial conglomerates.

- Altech's register includes Melewar International, a Malaysian based industrial firm with links to Malaysian royalty and SMS group a privately owned German firm with a deep experience in metals processing.
- Collerina's register includes PT Rajawali which is one of Indonesia's largest conglomerates spanning property, hospitality, agriculture and mining.

The presence of these industrial firms on Altech and Collerina's register is a material benefit for the respective projects as they are incentivised to see them developed. In Altech's case, Melewar International provides in country support for the development of the Malaysian HPA plant and SMS group has been instrumental in securing ECA funding for the project and has also provided a robust EPC contract (fixed price, removes commissioning risk and guarantees throughput/quality).

The registers for FYI and Hill End have attracted high quality investors which has increased the profile of the respective companies and the broader peer group.

- Hill End has Tolga Kumova as a top shareholder who has been associated with other resource success stories including Syrah Resources and New Century Zinc.
- FYI's register now includes substantial holders Regal Funds Management and Paragon Funds Management who both have a strong record of accomplishment by investing early in emerging thematic.

Figure 2: Major shareholders

ATC	%	HEG	%
Melewar International	11.7%	Tolga Kumova	6.7%
SMS Investments	9.1%	Merrill Lynch Nominees	5.6%
Lake Macleod Gypsum	5.8%	JP Morgan Nom.	4.4%
		CitiCorp Nom.	3.4%
		Quartz Mountain Mining	2.1%
FYI	%	CLL	%
Regal Funds Mgt	12.9%	PT Rajawali Corp	22.3%
Roland Hill	5.9%	Permgold (N Seckold)	12%
Paragon Funds Mgt	8.1%	Budworth Capital	7.2%
Empire Resources	3.8%	BT Portfolio Service	6.5%

Source: Company Reports, Iress, Petra Capital

Deposits

FYI Resources, Hill End Gold and Altech all have kaolin deposits that are reported on a screened basis, whilst Collerina Cobalt has a nickel laterite deposit which is rich in alumina and contains nickel and cobalt co-products.

Based on the publicly available information, the kaolin deposits have similar grades and morphology with some subtle but important differences in screen size and yields (Figure 3 and Figure 4). Altech has the largest reported screen size of -300µm with a good yield of 69% versus FYI at -63µm/43% and Hill End at -45µm/84%. The relatively low yield of 43% at Hill End and the low screen size of -45µm at FYI may imply beneficiation will be more costly at these two projects.

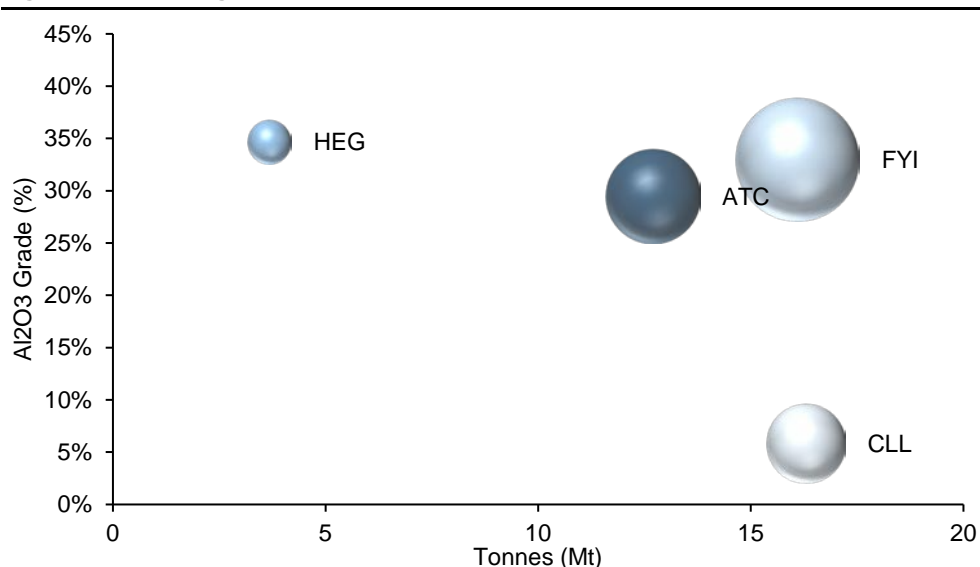
The Collerina Cobalt project is a very different style of alumina deposit, it is a nickel laterite rather than kaolin deposit and consequently the grade and contained alumina is much lower. The project is therefore considering HPA extraction via Counter Current Atmospheric Leaching (CCAL) rather than the HCl leach process proposed by the rest of the peer group.

Figure 3: Deposit details

	ATC	HEG	FYI	CLL
Project	Meckering Project	Yendon Project	Cadoux Kaolin Project	Collerina Project
Deposit Style	Kaolin Deposit	Kaolin Deposit	Kaolin Deposit	Nickel Laterite Deposit
Screen size of Resource	-300µm	-63µm	-45µm	Not Screened
Yield	69%	43%	84%	Not Screened
Tonnes (Mt)	8.70*	1.59*	13.59*	16.30
Al ₂ O ₃ Grade (%)	29.5%*	34.7%*	33.0%*	5.9%
Ni Grade (%)				0.9%
Co Grade (%)				0.05%
Al ₂ O ₃ (Mt)	2.57*	0.55*	4.48*	1.80
Approx Mine Life (@5kpta HPA)	385	83	673	270
Proposed Process	HCl Leach	HCl Leach	HCl Leach	CCAL

Source: Company Reports, Petra Capital (*reported as screened)

Figure 4: Tonnes, grade and contained alumina



Source: Company Reports, Petra Capital

Development

Altech's project has completed the lengthy study and approvals process and is now development ready. The rest of the peer group is at the resource stage and due to complete their respective PFSs in Q2'18. We assume Altech begin construction in Q3'18 once financing is complete. Hill End Gold are the only peer with a targeted construction date which is Q1'20 (Figure 5).

As non-conventional mining projects in a niche commodity, the progress to first production is slow. In the case of Altech, the process to becoming development ready was initiated by Iggy Tan when he was appointed MD in Aug-14, it took 3.5 years, including a 2 year due diligence period to secure a A\$190m debt facility with German government owned KfW IPEX-Bank.

If Altech's peers took a similar period of time to become development ready, this wouldn't occur until Sep-21.

Figure 5: Development hurdles

Milestones	ATC	HEG	FYI	CLL
Resource	Complete	Complete	Complete	Complete
Proof of Concept Metallurgy	Complete	Complete	Complete	Complete
PFS	Complete	Q2'18*	Q2'18*	Q2'18*
Metallurgical Studies	Complete			
Offtake	Complete			
Environmental Approvals	Complete			
Location Study for Plant	Complete	Q4'18*		
Pilot Trials	Complete	Q4'18-Q1'19*		
DFS	Complete	Q1'19*		
Mining Lease	Complete			
FID	Complete			
Equity Financing	Q2/Q3'18			
Construction	Q3'18^	Q1'20*		
Commissioning	Q3'21^	Q2'21*		

Source: Petra Capital, Company Reports

^Petra Estimate *Respective Peer Estimate

ASX Listed HPA Developer Summary

Figure 6: Key Metrics for ASX Listed HPA Developers

Ticker	ATC	HEG	FYI	CLL
Name	Altech Chemicals	Hill End Gold	FYI Resources	Collerina Cobalt
Mkt Cap (A\$m)	73	15	27	58
Cash (A\$m) (31-Dec-17)	9	3	1	3
EV (A\$m)	63	12	26	56
Project	Meckering / Tanjung Langsat	Yendon Project	Cadoux Kaolin Project	Collerina Project
Location	Western Australia/Malaysia	Victoria	Western Australia	New South Wales
Status	FID Complete	PFS Underway Due Q2'18	PFS Underway Due Q2'18	PFS Underway Due Q2'18
Screen Size of Resource	-300um	-63um	-45um	Not Screened
Yield (%)	69%	43%	84%	Not Screened
Tonnes (Mt)	8.7	1.6	13.6	16.3
Grade (Al ₂ O ₃)	30%	35%	33%	1%
Al ₂ O ₃ (Mt)	2.57	0.55	4.48	0.03
Processing Route	HCl HydroMet	HCl HydroMet	HCl HydroMet	Counter Current Atmospheric Leach
Planned Production	4.5ktpa	8ktpa	5-10ktpa	10ktpa
Capital Cost (US\$m)	US298m	???	???	???

Source: Company Reports, Petra Capital

Investment Thesis

Altech aim to be the world's first, pure play, high purity alumina (HPA) producer. The market for all grades of HPA is expected to quadruple in size by 2025, growing from 33ktpa to 122ktpa. Demand is being propelled by fast growing high tech applications, including LEDs and lithium-ion battery separators.

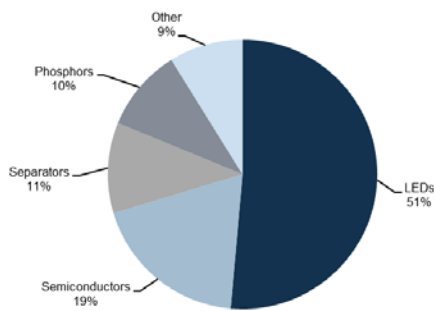
Altech's proposed West Australian mine and Malaysian HPA plant will produce 4.5ktpa of HPA and generate A\$180m in revenue at spot prices of US\$40,000/t.

The project is significantly advanced. Development approvals are in place, ECA funding of US\$190m is committed, and a fixed price EPC contract has been signed with leading German firm SMS Group that guarantees throughput volumes/quality and includes commissioning responsibility. Altech is BUY rated with a A\$0.41/sh target price (1xNPV).

Overall HPA Market Dynamic

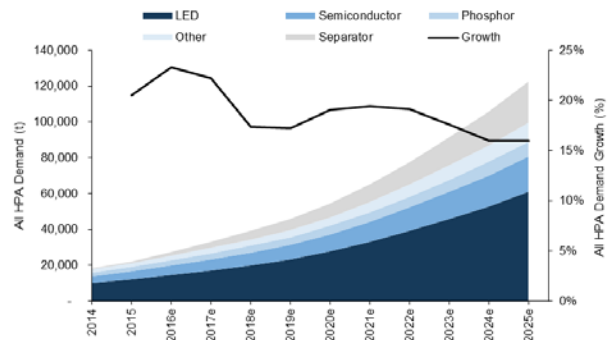
HPA is a high value, speciality product. Its principal application is as a feedstock for the production of synthetic sapphire for use in LEDs, semiconductor manufacturing and speciality glass. HPA can be used directly in the production of phosphors and has some promising emerging applications in ceramic coated separators for use in lithium ion batteries (Figure 7). Demand for all grades of HPA are expected to grow strongly at 15-20% CAGR out to 2025. This forecast growth rate is expected to drive the market from 33ktpa in 2017 to 122ktpa in 2025 (Figure 8).

Figure 7: Application of HPA (all grades) (2017e)



Source: Persistence Market Research

Figure 8: HPA (all grades) Demand Estimates



Source: Persistence Market Research

Petra Capital

Level 17, 14 Martin Place, Sydney NSW 2000

ABN 95 110 952 782
ACN 110 952 782
AFSL 317 944

Director:	George Marias	+61 (0)2 9239 9601	gmarias@petracapital.com.au
Research (Resources):	Brett McKay	+61 (0)2 9239 9605	bmckay@petracapital.com.au
Research (Resources):	Matthew Schembri	+61 (0)2 9239 9630	mschembri@petracapital.com.au
Research (Resources):	Craig Brown	+61 (0)2 9239 9629	cbrown@petracapital.com.au
Research (Resources):	Peter Chilton	+61 (0)2 9239 9634	pchilton@petracapital.com.au
Research (Industrials):	Killian Murphy	+61 (0)2 9239 9607	kmurphy@petracapital.com.au
Research (Industrials):	James Lennon	+61 (0)2 9239 9618	jlennon@petracapital.com.au
Research (Industrials):	Mark Tomlins	+61 (0)2 9239 9625	mtomlins@petracapital.com.au
Research (Property):	Jonathan Kriska	+61 (0)2 9239 9633	jkriska@petracapital.com.au
Sales:	Frank Barila	+61 (0)2 9239 9603	fbarila@petracapital.com.au
Sales:	Neil Watson	+61 (0)2 9239 9602	nwatson@petracapital.com.au
Sales:	Vincent Pisani	+61 (0)2 9239 9617	vpisani@petracapital.com.au
Sales:	Jamie Campbell	+61 (0)2 9239 9620	jcampbell@petracapital.com.au
Sales:	Peter Veldhuizen	+61 (0)2 9239 9609	pveldhuizen@petracapital.com.au
Sales:	Colin Redmond	+61 (0)2 9239 9613	credmond@petracapital.com.au
Sales:	Vince Barila	+61 (0)2 9239 9627	vbarila@petracapital.com.au
Sales:	Michael Casey	+61 (0)2 9239 9608	mcasey@petracapital.com.au
Sales:	Richard Macphillamy	+61 (0)2 9239 9604	rmacphillamy@petracapital.com.au
Corporate (ECM):	Conrad Anderson	+61 (0)2 9239 9610	canderson@petracapital.com.au
Administration:	Krystle Garven	+61 (0)2 9239 9635	kgarven@petracapital.com.au
Administration:	Samantha Tingley	+61 (0)2 9239 9636	stingley@petracapital.com.au
Administration:	Silvia Fratta Pasini	+61 (0)2 9239 9621	spasini@petracapital.com.au
Administration:	Larissa Falvo	+61 (0)2 9239 9611	lfalvo@petracapital.com.au
Legal & Compliance:	Stephen Newton	+61 (0)2 9239 9612	snewton@petracapital.com.au
Financials:	Tony Christelis	+61 (0)2 9239 9615	tchristelis@petracapital.com.au

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