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Alpha HPA Ltd (A4N)

Sapphire glass opportunity expands

Recommendation

Buy (unchanged)

Price

\$1.02

Valuation

\$1.53 (previously \$1.31)

Risk

Speculative

GICS Sector

Materials

Expected Return

Capital growth	50%
Dividend yield	0%
Total expected return	50%

Company Data & Ratios

Enterprise value	\$847m
Market cap	\$875m
Issued capital	858m
Free float	85%
Avg. daily val. (52wk)	\$1.4m
12 month price range	\$0.37-\$1.175

Price Performance

	(1m)	(3m)	(12m)
Price (A\$)	0.99	0.70	0.54
Absolute (%)	3.6	45.7	90.7
Rel market (%)	4.3	46.4	91.1

Absolute Price



SOURCE: IRESS

Ebner-Fametec discussions expand

A4N has announced a non-binding Letter of Intent with Ebner-Fametec for a potential larger-scale rollout of Fametec's synthetic sapphire growth technology. The A4N-Fametec partnership could see the initial 100 unit agreement (announced March 2023) expanded by an additional 1,000 units at an Australia-based facility. A4N and Fametec will also work co-operatively on research and market outreach activities relating to expanding the customer base for sapphire products. The expanded agreement follows positive feedback from potential customers and renewable energy providers. A4N also cites rapid demand growth from the micro-LED market for smartwatch displays.

Now a key A4N offering; substantial revenue uplift potential

Sapphire growth technology is value-adding for A4N's HPA First Project, with an estimated 10x product revenue uplift per alumina unit produced. The agreement is early stage, with Phase 1 underway for two production units to be installed for product qualification by mid-2024. Successful rollout of the technology to 1,000 units could see up to a third of A4N's production dedicated to sapphire production and has potential for a material uplift in project margins. The agreement also provides third party endorsement of the A4N's HPA First Project and products. We expect that further granularity in terms of potential economics and agreement structure will be provided, along with the HPA First Project final scope and FID over the coming months.

Investment view: Speculative Buy, Valuation \$1.53/sh

A4N's high purity aluminium and high purity alumina (HPA) products have value-adding application across lithium ion battery, micro-LED and semiconductor manufacturing. These technologies are at the forefront of the global decarbonising and reshoring themes. We expect A4N to soon announce product offtake agreements in support of debt financing and FID for the full scale HPA First Project. Our A4N valuation is now \$1.53/sh through further de-risking the HPA First Project.

A4N is a development company with prospective operations and cash flows only. Our Speculative risk rating recognises this higher level of risk and volatility of returns.

Earnings Forecast

Year ending 30 June	2022a	2023e	2024e	2025e
Sales (A\$m)	2	3	13	190
EBITDA (A\$m)	(7)	(9)	(1)	113
NPAT (reported) (A\$m)	(7)	(10)	(7)	80
NPAT (adjusted) (A\$m)	(7)	(10)	(7)	80
EPS (adjusted) (cps)	(0.9)	(1.3)	(0.9)	9.7
EPS growth (%)	na	na	na	na
PER (x)	-109.7x	-78.5x	-114.5x	10.5x
FCF Yield (%)	-4%	-3%	-27%	-10%
EV/EBITDA (x)	-118.0x	-93.4x	-934.3x	7.5x
Dividend (cps)	-	-	-	-
Yield (%)	0%	0%	0%	0%
Franking (%)	-	-	-	-
ROE (%)	-15%	-20%	-7%	45%

SOURCE: BELL POTTER SECURITIES ESTIMATES

Sapphire glass opportunity expands

Ebner-Fametek discussions expand

A4N has announced a non-binding Letter of Intent with Ebner-Fametek for a potential larger-scale rollout of Fametek's synthetic sapphire growth technology from 100 units to an additional 1,000 units at an Australia-based facility. A4N and Fametek will also work cooperatively on research and market outreach activities relating to expanding the customer base for sapphire products.

The initial Fametek agreement was announced in March 2023 and included Phase 1 with two production units to be installed in early 2024 at an expected cost of ~A\$3.4m for product qualification by mid-2024. A4N would then consider further expansions of up to 100 growth units by the end of 2025 in two stages (Phase B 48 units; Phase C 50 units).

Fametek's synthetic sapphire growth technology will value-add to A4N's HPA First Project production. HPA forms a key input into synthetic sapphire growth. Access to low cost and reliable renewable energy is another key requirement.

Supportive backdrop for synthetic sapphire supply disruption

- **Leveraging market strength:** Key markets include optics, LED/semiconductors and power electronics. The smartwatch display market is expected to grow to US\$17b by 2026; sapphire glass wafer demand for micro-LEDs forecast to grow at a CAGR +500% 2023-27.
- **Market supply diversification:** Sapphire glass production is traditionally dominated by Russia and China (+80% of market), with Russian company Monocrystal estimated to represent 25-40% of global supply.
- **ESG:** The Ebner-Fametek technology produces synthetic sapphire boules with utilisation of +60%, compared with incumbent production technology of 35-40%, and with a 50% power saving, resulting in a materially lower carbon footprint, particularly when paired with renewable energy.

Value uplift: 10x revenue uplift; economics to be advised

A4N estimates the adoption of the Ebner-Fametek technology for the conversion of HPA to sapphire glass represents a net revenue uplift of ~10x per unit of HPA.

A4N's prior DFS work (March 2020) was based on 10,000tpa HPA production and a price assumption of US\$15,000-25,000/t HPA, or total revenue of US\$150-250m/year. If one-third of production gets a 10x revenue uplift (i.e. US\$150,000-250,000/t HPAe), the project average price could lift to US\$60-100/t, or revenue of US\$600-1,000m/year.

However, the key determinant of the value uplift for A4N will be determined by the final form of the A4N-Fametek partnership (i.e. share of economics across both parties), the project's access to competitive and reliable renewable energy, and the ability to displace incumbent supply.

We expect that further granularity in terms of potential economics and agreement structure will be provided over the coming months.

Valuation summary

Our A4N valuation is now \$1.53/sh, with our preferred valuation scenario the average of the mid and high price assumption, to take into account project de-risking and the early stage sapphire glass opportunity.

Table 1 - Risked & diluted valuation summary

Product price scenario	1	2	3
		Preferred	
Price - 4N HPA equivalent basket US\$/t	15,000	20,000	25,000
HPA First Project			
Unrisked NPV (10% discount rate) \$m	581	1,177	1,611
Risk discount %	20%		
Risked NPV (10% discount rate) \$m	464	941	1,289
Other (Canada potential, 80% risked) \$m	58	118	161
Other (downstream & other) \$m	46	94	129
Corporate costs \$m	-50		
Enterprise value \$m	519	1,103	1,529
Net debt / (cash) \$m	-27		
Equity valuation (risked, undiluted) \$m	546	1,130	1,557
Assumed capital raise \$m	90		
Assumed raise price \$/sh	0.918		
Government grant \$m	67		
Current shares on issue m	858		
In the money options m	44		
Assumed capital raising dilution m	98		
Diluted shares on issue m	1,000		
Net debt / (cash) (including options, assumed raising & grants) \$m	-208		
Equity valuation (risked, diluted) \$m	727	1,311	1,737
Equity valuation (risked, diluted) \$/sh	0.73	1.31	1.74
Equity valuation (risked, diluted) – PREFERRED \$/sh		\$1.53/sh	
Current share price \$/sh	1.000		
Valuation / price x	0.7x	1.3x	1.7x

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Our risked and diluted A4N valuation is based on:

- 4N HPA prices of US\$20,000-25,000/t (consistent with CRU Group's market outlook);
- A4N's March 2020 Definitive Feasibility Study HPA First Project capital and operating costs; and
- A4N's published Precursor Production Facility (June 2021) capital and operating cost estimates.

Table 2 - March 2020 DFS assumptions

Price scenario	Low	Mid	High
HPA volume tpa	10,000	10,000	10,000
Price assumption	US\$15,000/t	US\$20,000/t	US\$25,000/t
Unit cash cost	US\$5,940/t	US\$5,940/t	US\$5,940/t
Margin	US\$9,060/t	US\$14,060/t	US\$19,060/t
Revenue	US\$150m	US\$200m	US\$250m
Costs	US\$59m	US\$59m	US\$59m
Pre-tax cash flow	US\$91m	US\$141m	US\$191m
Margin %	60%	70%	76%
Pre-tax cash flow	A\$133m	A\$207m	A\$280m

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Risk and dilution to calculated NPV:

- Project risk discount of 20% to take into account project stage (DFS completed, pre-development stage); and
- Dilution from an assumed \$90m equity raising prior to commencement of full scale construction in FY24, at a 10% discount to A4N's current share price.

Our positive view on A4N is further supported by:

- Since the DFS, A4N has identified a number of precursor high purity aluminium and alumina products which have the potential to add further value to the project. These precursor products are produced mid-stream of the project's flow-sheet, are expected to be higher margin and have the potential to provide increased return on capital invested.
- The global decarbonisation and reshoring themes have accelerated as developed economies look to address climate change targets. A4N's HPA First Project products have applications in technologies directly linked to these themes; the manufacturing of lithium ion batteries, LED lighting and semiconductors.
- A4N's products have applications in the manufacture of micro-LEDs. Micro LED technology is expected to be the next generation of display technology, superseding OLED and black-lit LCDs.
- Commercialisation of A4N's HPA First Project technology could step beyond the proposed Gladstone project development. With A4N's propriety technology, HPA First Project could be scaled up or replicated elsewhere. A4N and ORI have a MoU to investigate the technical and commercial feasibility of establishing a new facility in North America near ORI's Carseland asset in Alberta, Canada.
- A4N has announced the HPA First Project has received a Federal Government funding grant of up to \$61m to support the project through the Modern Manufacturing Initiative and Critical Minerals Accelerator Initiative programme. Subsequently, a further grant of up to \$22m from the Queensland Government Industry Partnership Program was awarded.

Future capital requirements & funding options

At 31 March 2023, A4N held cash of \$18.9m and no debt. Subsequent to quarter end, the second Critical Minerals Development Program (Commonwealth Government) tranche of \$8.5m was received.

A4N's March 2020 HPA First Project DFS estimated capital costs of \$308m, including \$27m over-run contingency.

The HPA First Project's location (Gladstone, Queensland) and end products (inputs into key decarbonising technologies) make it a candidate for Government-backed concessional debt finance. We expect that the Northern Australia Infrastructure Facility, Clean Energy Finance Corporation and Export Finance Australia will consider extending debt facilities to support the project. We also expect that commercial banks diversifying away from carbon intensive projects will have an interest in extending debt and working capital finance.

The following table outlines the HPA First Project's capital requirements and the sources of funding which we assume. We factor in a \$90m equity raising over the next twelve months to support the project's development and working capital ahead of debt draw-down.

Table 3 - Future capital requirements – excluding working capital

Capital costs (2020 DFS estimates)			A\$m
Processing plant			173
Utilities			19
Infrastructure			39
Indirects			44
Owners costs			7
Total excluding contingency			281
Contingency			27
Total funding requirement			308
Assumed sources of funds		% est.	A\$m
Debt finance		65%	200
Equity		35%	108
Total		100%	308

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Government Grant grants in support of the HPA First Project

Grants from Commonwealth and State Government agencies for A4N's HPA First Project now total \$82m.

Table 4 - A4N government grants

Source	Program	Purpose	Announced	A\$m
Commonwealth Government	Modern Manufacturing Initiative	HPA First Project	16/03/2022	45
Commonwealth Government	Critical Minerals Accelerator Initiative	Stage 1 - PPF	28/04/2022	16
Queensland Government	Industry Partnership Program	HPA First Project	5/04/2023	22
Total grants				82
Stage 1 grants				16
Stage 2 grants				67

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

HPA First product suite & applications

Table 5 - A4N's product suite & applications

KEY APPLICATION	Lithium ion batteries			LEDs		Semi-conductors	Other
	Cathode	Separator	Anode	LED lights	Micro-LEDs (displays)		
A4N PRODUCT							
Aluminium Precursors							
Aluminium nitrate	HPA particle coating		HPA particle coating (anode active materials)	Phosphors for white LEDs	Nano-size phosphors		Catalysts & YAG laser crystals
Aluminium sulphate	Sulphate blending (NCA & NCMA) & HPA particle coating						
High Purity Alumina							
HPA powder (gamma phase)		HPA layer coating		Phosphors for white LEDs			Specialty ceramics
HPA powder & tablets (alpha phase)				Sapphire glass wafers (substrate)	Sapphire glass wafers (substrate)	Chemical-Mechanical Polishing	
Boehmite		Boehmite layer coating					Specialty ceramics

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Alpha HPA Ltd summary

Company description

A4N's HPA First Project is aiming to supply high-purity alumina (HPA) at a purity of greater than 99.99% (or 4N) to the lithium ion battery and light emitting diode (LED) manufacturing sectors. The project's proprietary technology is expected to disrupt incumbent HPA production through significantly lower unit costs. Results of a March 2020 DFS outlined a 10,000tpa 4N HPA project with a capital cost of \$308m and pre-tax annual cash flow of \$133-280m at 4N HPA prices ranging US\$15,000-25,000/t.

In June 2021, a HPA First Project Stage 1 was estimated to have revenues of \$10-15m and generate free cash flow of \$1.5-5.0m from aluminium precursor production of 200tpa. This project was subsequently scaled up to produce +350ktpa aluminium nitrates and additional high purity alumina and high purity boehmite production. Production at Stage 1 commenced in late 2022. When integrated into the full HPA First Project, this free cash flow increases to \$8-11m.

The HPA First Project is a solvent extraction process using an aluminium chemical feedstock purchased on globally traded markets. Orica Ltd (ORI) and A4N have executed a definitive agreement for ORI's supply of process reagents and for by-product offtake. This agreement has required significant third party due diligence of the HPA First Project process.

Investment view: Speculative Buy, Valuation \$1.53/sh

A4N's high purity aluminium and high purity alumina (HPA) products have value-adding application across lithium ion battery, micro-LED and semiconductor manufacturing. These technologies are at the forefront of the global decarbonising and reshoring themes. We expect A4N to soon announce product offtake agreements in support of debt financing and FID for the full scale HPA First project.

A4N is a development company with prospective operations and cash flows only. Our Speculative risk rating recognises this higher level of risk and volatility of returns.

Valuation methodology

We have modelled the HPA First Project using assumptions consistent with the March 2020 DFS. We assume:

- 4N HPA prices of US\$20,000-25,000/t (consistent with CRU Group's market outlook);
- A4N's March 2020 Definitive Feasibility Study HPA First Project capital and operating costs; and
- A4N's published Precursor Production Facility (June 2021) capital and operating cost estimates.

Risk and dilution to calculated NPV:

- Project risk discount of 20% to take into account project stage (DFS completed, pre-development stage); and
- Dilution from an assumed \$90m equity raising prior to commencement of full scale construction in FY24, conservatively at a 10% discount to A4N's current share price.

Risks

Risk to an investment in A4N include, but are not limited to:

- **Commodity price and exchange rate fluctuations.** The future earnings and valuations of development and operating assets and companies are subject to fluctuations in underlying commodity prices and foreign currency exchange rates.
- **Technology:** Projects may be reliant on commercialisation of new production processes and methodologies which have yet been proven on a large scale. Technology may be replicated by competitors resulting in a loss of market share.
- **Infrastructure access.** Projects are reliant upon access to transport and pipeline infrastructure. Access to infrastructure is often subject to contractual agreements, permits and capacity allocations. Agreements are typically long-term in nature. Infrastructure can be subject to outages as a result of weather events or the actions of third party providers.
- **Operating and capital cost fluctuations.** Markets for raw material inputs and labour can fluctuate and cause significant differences between planned and actual operating and capital costs. Key operating costs are linked to commodity and labour markets. Companies are also exposed to costs associated with future land rehabilitation.
- **Sovereign risks.** Companies' assets are subject to the sovereign risk of the country of location and may also be exposed to the sovereign risks of major offtake customers.
- **Regulatory changes.** Changes to the regulation of infrastructure and taxation (among other things) can impact the earnings and valuations of companies.
- **Environmental risks.** Companies are exposed to risks associated with environmental degradation as a result of their production processes.
- **Operating and development risks.** Companies' assets are subject to risks associated with their operation and development. Development assets can be subject to approvals timelines or weather events, causing delays to commissioning and commercial production.
- **Occupational health and safety (OH&S) risks.** Companies are exposed to OH&S risks.
- **Funding and capital management risks.** Funding and capital management risks can include access to debt and equity finance, maintaining covenants on debt finance, managing dividend payments and managing debt repayments.
- **Merger/acquisition risks.** Risks associated with value transferred during merger and acquisition activity.
- **Impact of pandemic infection such as Coronavirus disease (COVID-19).** This may have an adverse impact on the macro economic factors, including the mobility of labour, which can impact asset valuations.

Table 6 - Financial summary

Date	5/06/23					Bell Potter Securities												
Price	AS/sh 1.020					Stuart Howe (showe@bellpotter.com.au, +61 3 9235 1856)												
Valuation	AS/sh 1.53																	
PROFIT AND LOSS						FINANCIAL RATIOS												
Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e	Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e					
Revenue	\$m	1	2	3	13	190	VALUATION											
Expenses	\$m	(15)	(9)	(12)	(14)	(77)	EPS	Ac/sh	(2)	(1)	(1)	(1)	10					
EBITDA	\$m	(14)	(7)	(9)	(1)	113	EPS growth (Acps)	%	na	na	na	na	na					
Depreciation & amortisation	\$m	(2)	(0)	(1)	(2)	(14)	PER	x	-43.6x	-109.7x	-78.5x	-114.5x	10.5x					
EBIT	\$m	(16)	(7)	(10)	(3)	99	DPS	Ac/sh	-	-	-	-	-					
Net interest expense	\$m	(0)	0	-	(5)	(12)	Franking	%	0%	0%	0%	0%	0%					
Profit before tax	\$m	(16)	(7)	(10)	(7)	87	Yield	%	0%	0%	0%	0%	0%					
Tax expense	\$m	-	-	-	-	(8)	FCF/share	Ac/sh	(1.2)	(4.4)	(2.8)	(27.5)	(10.5)					
NPAT (reported)	\$m	(16)	(7)	(10)	(7)	80	FCF yield	%	-1%	-4%	-3%	-27%	-10%					
NPAT (adjusted)	\$m	(16)	(7)	(10)	(7)	80	EV/EBITDA	x	-60.6x	-118.0x	-93.4x	-934.3x	7.5x					
CASH FLOW STATEMENT						LIQUIDITY & LEVERAGE												
Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e	Net debt / (cash)	\$m	(50)	(17)	(14)	120	206					
OPERATING CASH FLOW							Net debt / Equity	%	-100%	-36%	-25%	86%	94%					
Receipts from customers	\$m	-	-	6	11	155	Net debt / Net debt + Equity	%	82517%	-56%	-34%	46%	49%					
Payments to suppliers and employees	\$m	(3)	(4)	(18)	(14)	(71)	Net debt / EBITDA	x	3.6x	2.3x	1.6x	-132.4x	1.8x					
Tax paid	\$m	-	-	-	-	(8)	EBITDA /net int expense	x	-148.6x	432.5x	0.0x	-0.2x	9.4x					
Net interest	\$m	0	0	-	(5)	(12)	PROFITABILITY RATIOS											
Other	\$m	1	-	-	-	-	EBITDA margin	%	-1446%	-352%	-271%	-7%	59%					
Operating cash flow	\$m	(2)	(4)	(12)	(7)	64	EBIT margin	%	-1676%	-362%	-313%	-21%	52%					
INVESTING CASH FLOW							Return on assets	%	-52%	-14%	-18%	-4%	21%					
Capex	\$m	(7)	(31)	(10)	(217)	(150)	Return on equity	%	-54%	-15%	-20%	-7%	45%					
Acquisitions	\$m	-	0	-	-	-	ASSUMPTIONS - Prices (nominal)											
Other	\$m	-	-	-	-	-	Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e					
Investing cash flow	\$m	(7)	(31)	(10)	(217)	(150)	4N HPA price	US\$/t	23,750	20,000	20,000	20,000	20,000					
FINANCING CASH FLOW							4N HPA price	A\$/t	31,777	27,508	29,694	28,777	28,571					
Debt proceeds/(repayments)	\$m	(0)	(0)	-	150	100	FX	US\$/A\$	0.75	0.73	0.67	0.70	0.70					
Dividends paid	\$m	-	-	-	-	-	ASSUMPTIONS - Sales (equity)											
Proceeds from share issues (net)	\$m	51	1	20	90	-	Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e					
Other	\$m	0	-	-	-	-	4N HPA sales	t	-	-	-	-	6,219					
Financing cash flow	\$m	51	1	20	240	100	5N Al-Precursor #1 - Al-Nitrate	t	-	-	98	175	175					
Change in cash	\$m	42	(34)	(3)	16	14	5N Al-Precursor #2 - Al-Sulfate	t	-	-	98	175	175					
Free cash flow	\$m	(8)	(35)	(22)	(224)	(86)	VALUATION											
BALANCE SHEET						Product price scenario												
Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e	1			2			3					
ASSETS							4N HPA price US\$/t			15,000			20,000			25,000		
Cash	\$m	50	17	14	30	44	HPA First project \$m											
Receivables	\$m	1	3	1	3	38	Unrisked NPV (8% discount rate)			581			1,177			1,611		
Inventories	\$m	-	0	1	1	8	Risk discount			20%								
Capital assets	\$m	1	28	37	252	389	Risked NPV			464			941			1,289		
Other assets	\$m	0	6	6	6	6	Other (Canada potential, 90% risked)			58			118			161		
Total assets	\$m	52	55	59	292	485	Other (downstream & other)			46			94			129		
LIABILITIES							Corporate costs \$m			(50)								
Creditors	\$m	2	7	2	3	15	Enterprise value \$m			519			1,103			1,529		
Borrowings	\$m	-	-	-	150	250	Net debt / (cash) \$m			(27)								
Provisions	\$m	-	-	-	-	-	Equity valuation (risked, undiluted) \$m			546			1,130			1,557		
Other liabilities	\$m	0	1	1	1	1	Assumed capital raise \$m			90								
Total liabilities	\$m	2	8	3	153	266	Assumed raise price \$/sh			0.92								
NET ASSETS	\$m						Current shares on issue m			858								
Share capital	\$m	100	102	122	212	212	In the money options m			44								
Reserves	\$m	8	10	10	10	10	Assumed capital raising dilution m			98								
Accumulated losses	\$m	(57)	(64)	(75)	(82)	(10)	Diluted shares on issue m			1,000								
Non-controlling interest	\$m	-	-	-	-	-	Net debt / (cash) (including options & assumed raising) \$m			(208)								
SHAREHOLDER EQUITY	\$m	50	47	56	139	219	Equity valuation (risked, diluted) \$m			727			1,311			1,737		
Weighted average shares	m	694	794	806	817	817	Equity valuation (risked, diluted) \$/sh			0.73			1.31			1.74		
							Equity valuation (risked, diluted) - Preferred \$/sh									1.53		

SOURCE: BELL POTTER SECURITIES ESTIMATES

Recommendation structure

Buy: Expect >15% total return on a 12 month view. For stocks regarded as 'Speculative' a return of >30% is expected.

Hold: Expect total return between -5% and 15% on a 12 month view

Sell: Expect <-5% total return on a 12 month view

Speculative Investments are either start-up enterprises with nil or only prospective operations or recently commenced operations with only forecast cash flows, or companies that have commenced operations or have been in operation for some time but have only forecast cash flows and/or a stressed balance sheet.

Such investments may carry an exceptionally high level of capital risk and volatility of returns.

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Research Coverage & Policies

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