

November 2022

**PRICE** A\$0.185/share  
**PRICE TARGET** A\$0.60/share

**Mike Harrowell** Senior Analyst

www.breakawayresearch.com

#### Company Information

ASX Code	WAK
Share Price (10 Nov 2022)	A\$0.185
Ord Shares	333.0m
<b>Market Cap</b>	<b>A\$61.6m</b>
Options/Performance Rights	194.7m
<b>Market Cap (fully diluted)</b>	<b>A\$97.6m</b>
Cash (30 Sep 2022)	A\$2.9m
Total Book Debt ( )	A\$26.2m
<b>Enterprise Value (Undiluted)</b>	<b>A\$84.9m</b>

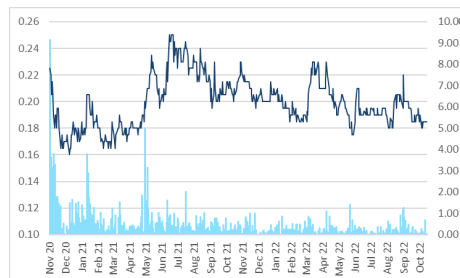
#### Directors and Senior Management

Non-Exec Chairman	Dr. John White
CEO	Andrew Sorensen
Director (Exec)	Alf Baker
Director (Non-Exec)	Cathy Moises
Director (Non-Exec)	Patrick Walta
CFO, Co. Secretary	Michael Kenyon

#### Company Details

Address	Lot 3 Ward Road East Rockingham, WA 6168
Phone	+61 (0) 8 9439 6300
Web	www.wakaolin.com

#### WA Kaolin Share Price Chart



Price to 10 November 2022

## WA KAOLIN LIMITED (ASX: WAK)

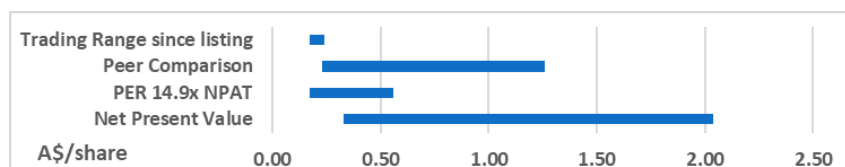
*Ramping to 200ktpa and expanding to 400ktpa*

Recommendation: BUY

#### KEY POINTS

- WA Kaolin is ramping up production of its Wickepin Stage 1 and has achieved product specification for K99S product. We expect WA Kaolin will earn EBITDA of A\$10M pa from the A\$18M spent to build Stage 1.
- Some elements of construction of Stage 2 commenced during the building of Stage 1 and is expected to cost a revised A\$16M of which A\$12.3M remains to be spent at 30 September 2022. We expect this Stage to add a further A\$17M EBITDA when at full capacity.
- WA Kaolin is not Resource constrained and should be able to grow for many years.
- The kaolin market has been characterized by decades of price stability. 2022 is proving to be an unusual year with the highest inflation in 30 years. US kaolin producers have increased their list prices twice this year so far, and one has added a gas price surcharge.
- In an environment of high and volatile energy prices, WA Kaolin's proprietary K99 dry process is a strategic advantage compared to wet processing. Because the kaolin clay is separated dry, the process uses considerably less energy to remove water and dry the resulting powder. This should allow WA Kaolin to offer greater price stability to customers.
- The company must fund Stage 2, which will be simple if the 131M A\$0.25/sh options on issue are exercised soon. If this doesn't happen, Stage 2 will need alternative funding or deferral. Stage 2 also needs sales contracts.
- Drivers of share price appreciation are expected to be:
  - Evidence of product acceptance, especially the tighter specifications
  - Visibility on Stage 1 earnings capacity ie the Dec 2023 financial report
  - Clarity on the funding and timing of the Stage 2 development
  - Consolidation of kaolin producers in the US over last 12 months

Our price target of A\$0.60/sh is where the share price is expected to be in 12 months' time and is based on the Net Present Value of Stage 1 (A\$0.34/sh) and 52% of the value added by Stage 2. This is supported by valuation of A\$0.56/sh on forecast FY26 NPAT earnings at the ASX average market PER of 14.9X, and by peer comparison metrics.



*Hence, Breakaway Research has a BUY recommendation on WA Kaolin with a price target of A\$0.60/share.*

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should consider this report as only a single factor in making their investment decisions. Please refer to the disclosure section at the end of this document.

WA Kaolin Limited					WAK					
Share Price A\$/sh				0.185	CASH FLOW YE June		FY22F	FY23F	FY24F	FY25F
Price Target A\$/sh				0.600	Receipts From Customers		1.1	14.4	47.4	87.2
PROFIT AND LOSS A\$M	FY22F	FY23F	FY24F	FY25F	Payments to Suppliers		-5.9	-17.8	-40.6	-68.4
Revenue	1.5	15.5	51.9	92.2	Net Interest Paid		-0.7	-1.2	-0.8	-0.2
COGS	-0.9	-12.5	-39.3	-66.7	Taxes Paid		0.0	0.0	0.0	-1.7
Gross Profit	0.6	3.0	12.5	25.5	Net Cash from Operations		-5.1	-4.6	5.9	16.9
Gross Profit Margin	42.4%	19.3%	24.2%	27.6%	PP&E		-0.8	0.0	0.0	-0.5
Corporate & Explor'n	-6.0	-4.5	-2.7	-3.3	Mine Development		-10.1	-7.2	-7.8	0.0
EBITDA - Reported	-5.3	-1.5	9.8	22.2	Investing Activity		-10.8	-7.2	-7.8	-0.5
D&A	-0.3	-0.5	-1.8	-3.1	Issues/Option Conversion		9.0	11.5	23.4	2.3
EBIT - Reported	-5.6	-2.0	8.0	19.1	Forward Sales		0.0	0.0	0.0	0.0
Total Financial Income	-1.9	-1.0	-2.3	-0.9	Dividends		0.0	0.0	0.0	0.0
PBT	-7.6	-3.0	5.8	18.2	Net Borrowings		2.7	-0.4	-13.5	-12.4
Tax Expense	0.0	0.9	-1.7	-5.5	Financing Costs		-0.4	0.0	0.0	0.0
NPAT	-7.6	-2.1	4.0	12.8	Financing Activity		11.4	11.2	10.0	-10.1
Shares on Issue	333.0	382.0	475.7	483.5	FX Difference		0.0	0.0	0.0	0.0
Diluted Shares on Issue	527.7	527.7	527.7	527.7	Net Increase in Cash		-4.6	-0.6	8.1	6.3
EPS undiluted A cps	-2.27	-0.55	0.85	2.64	YE Cash on Hand		6.4	5.7	13.8	20.1
Dividend cps	0.00	0.00	0.00	1.74	BALANCE SHEET YE June		FY22F	FY23F	FY24F	FY25F
					Cash		6.4	5.7	13.8	20.1
EBITDA Margin %	na	-10%	19.0%	24.1%	Receivables		0.8	1.9	6.4	11.4
Return on Equity:	na	na	9.6%	26.1%	Inventories		0.4	1.4	3.5	5.8
Return on Invested Cap.	na	na	13.1%	33.5%	Total Current Assets		7.6	9.0	23.6	37.2
PER	na	na	21.7	7.0	PP&E		5.0	4.9	4.6	4.7
Price/Book	11.3	4.7	2.1	1.8	Expln & Mine Developm't		20.0	26.9	33.1	30.4
Book value A\$/sh	0.02	0.04	0.09	0.10	Deferred Tax Asset		0.0	0.9	0.9	0.9
VALUATION (NPV)	FY22F	FY23F	FY24F	FY25F	Total Non Current Assets		25.0	32.6	38.6	36.0
Wickepin Dry	341.0	370.0	396.9	400.8	Total Assets		32.6	41.7	62.3	73.2
Corporate Overhead	-32.7	-33.3	-33.7	-34.2						
Cash on hand	6.4	5.7	13.8	20.1	Trade Payables		2.1	2.3	5.8	9.6
Debt	-24.3	-23.8	-11.7	0.0	Borrowings		24.3	23.8	11.7	0.0
Net Working Capital	-0.9	1.0	4.1	7.5	Current Tax Liabilities		0.0	0.0	1.7	5.5
Valuation A\$M	289.4	319.7	369.4	394.3	Provisions		0.7	0.7	0.7	9.1
Valuation A\$/sh	0.869	0.837	0.776	0.815	Total Liabilities		27.1	26.8	19.9	24.2
Discount Rate					Net Assets		5.5	14.9	42.4	49.0
OPERATING DATA	FY22F	FY23F	FY24F	FY25F						
Revenue A\$M	1.1	15.5	51.9	92.2	Issued Capital		42.3	53.8	77.3	79.5
Site Direct Costs A\$M	-0.5	-6.5	-23.4	-41.2	Reserves		35.9	35.9	35.9	35.9
Royalty A\$M	-0.1	-1.1	-3.8	-6.8	Retained Profits		-72.7	-74.8	-70.8	-66.4
COGS A\$M	-0.6	-7.6	-27.2	-48.0	Shareholder Equity		5.5	14.9	42.4	49.0
Site Overheads A\$M	-1.0	-1.9	-2.4	-3.6	ASSUMPTIONS		FY22F	FY23F	FY24F	FY25F
Corporate A\$M	-0.9	-2.5	-2.7	-2.7	Ore Reserves Kt dry		30481	30364	29941	29214
Sales & Marketing A\$M	0.0	-0.2	-0.5	-0.9	Ore Mined Kt wet		11	133	480	827
Ocean Freight A\$M	-0.2	-2.8	-9.0	-14.0	Recovery		38%	38%	38%	38%
R&D A\$M	-0.2	0.0	-0.2	-0.2	Ore Processed Kt		4	50	180	310
Total Costs A\$M	-2.9	-15.0	-42.0	-69.5	Sales Kt		4	50	180	310
					ASP A\$/t CFR		264.0	310.0	288.1	297.3
EBITDA	-1.8	0.5	9.8	22.7	Revenue A\$M		1.1	15.5	51.9	92.2



## Company Overview & Investment Case

### Strategy of organic growth from cash flow

#### WA Kaolin starts production well ahead of its peers

WA Kaolin has constructed the first stage of a two stage development to produce kaolin at Wickiepin, Western Australia 200Km east southeast of Perth. The Stage 1 200,000tpa kaolin plant has been constructed and is currently delivering K99S specification produce (the easiest specification) and will shortly demonstrate delivery of tighter specification products.

#### ...and is well on the way to Stage 2 which doubles capacity to 400,000tpa by FY2025

Stage 2 has had A\$3.7M spent out of the revised A\$16M cost and we expect that stage to be ramping up in FY25. The low capital cost means it can be built in advance of having sales contracts, but for investors, the timing of the ramp up will depend on contracts.

#### The estimated running yield of Stage 1 is 55% pa (Our forecast FY24 EBITDA on A\$18M capex)

In the meantime, Stage 1 at close to full capacity is forecast to generate an EBITDA of A\$9.9M, a running yield of 55%pa on the A\$18M capital cost of the plant or 24% pa on the full cost including all the R&D that went into developing the dry process for producing kaolin.

TABLE 1 FOUR YEARS OF VERY STRONG EARNINGS GROWTH AHEAD FROM THE DRY PROCESSING STAGES 1 AND 2

	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Sales Kt	50	180	310	380	380	380
Ave Sales Price US\$/t CIF	211	196	202	209	215	222
AUDUSD	0.680	0.680	0.680	0.680	0.680	0.680
Selling Price A\$/t CIF	310	288	297	307	317	327
Comprising A\$/t FOB	255	238	252	261	269	278
Plus Sea Freight A\$/t	55	50	45	46	47	48
Revenue A\$M	15.5	51.9	92.2	116.6	120.3	124.2
Ocean Freight A\$M	-2.8	-9.0	-14.0	-17.5	-18.0	-18.4
Royalty A\$M	-1.1	-3.8	-6.8	-8.5	-8.8	-9.0
Net Revenue FOB A\$M	11.6	39.0	71.5	90.5	93.6	96.7
<b>Operating Costs A\$M</b>						
Opex A\$M	-6.5	-23.4	-41.2	-51.6	-52.7	-53.9
Site Overheads A\$M	-1.9	-2.4	-3.6	-4.0	-5.4	-5.5
Corporate A\$M	-2.5	-2.7	-2.7	-2.8	-3.0	-3.1
Transaction Fees A\$M	0.0	0.0	0.0	0.0	0.0	0.0
Sales & Marketing A\$M	-0.2	-0.5	-0.9	-1.2	-1.2	-1.2
R&D A\$M	0.0	-0.2	-0.2	-0.2	-0.2	-0.2
Total Costs A\$M	-11.1	-29.2	-48.7	-59.9	-62.6	-64.0
EBITDA	0.5	9.8	22.7	30.7	31.0	32.8
Net Revenue A\$/t FOB	232.4	216.9	230.5	238.3	246.3	254.6
<b>Operating Costs A\$/t FOB</b>						
Opex A\$M	130.0	130.0	132.9	135.8	138.8	141.8
Site Overheads A\$M	38.6	13.1	11.8	10.6	14.2	14.5
Corporate A\$M	50.0	14.9	8.9	7.4	7.9	8.1
Transaction Fees A\$M	0.0	0.0	0.0	0.0	0.0	0.0
Sales & Marketing A\$M	3.1	2.9	3.0	3.1	3.2	3.3
R&D A\$M	0.8	1.3	0.8	0.6	0.6	0.6
Total Costs A\$M	222.5	162.2	157.2	157.5	164.7	168.4
EBITDA A\$/t	9.9	54.7	73.3	80.7	81.6	86.2

Source: Breakaway estimates, WAK DFS of September 2020



### **Wickepin's Resource base could see WA Kaolin grow for a decade or more**

With what appears to be a 55% pa running yield (ie EBITDA/Capital Cost) or more on future expansions, and the ability to fund expansions from cash flow, WA Kaolin's growth is limited only by its Resource base. It has a Resource of 644.5Mt and a Reserve of 30.5Mt (Tables 14 and 15). Assuming a recovery into product of 37.5%, the Resource would convert to 241Mt of product and the Reserve to 11Mt of product. The Reserve alone would be sufficient to support 1Mtpa of product for 11 years and the Resource could support as much as 12mtpa for 20 years, so WA Kaolin is a long way from being Resource constrained.

### ***There are some major events that could push the kaolin market towards WA Kaolin***

Two are related to the apparent breakdown of globalisation.

- Ukraine's 2019 kaolin production was 2.4Mtpa and this has become more uncertain.
- Inflation was a global problem prior to the start of the war in Ukraine and is impacting the US more than in Australia. US is the marginal competitor to Australia in the Asian market.
- WA Kaolin's dry processing technology is less energy intensive than the competing wet processes, and so if energy prices remain high and volatile, WA Kaolin will enjoy a competitive advantage over the wet process producers. One US producer has added a gas price surcharge of US\$4.95/t kaolin for each US\$1/MMBTU the Henry Hub gas price goes above US\$4/MMBTU (See p21) which has added US\$15-25/tonne to its kaolin prices.

### ***WA Kaolin's Australian peers appear to be slowing their rate of development.***

Andromeda had indicated in its April 2022 Definitive Feasibility Study that production would be 153,000tpa in the first two years and 165,000tpa thereafter, from the A\$93.8M Stage 1 project. On 26 August 2022, it indicated that the initial plant would be reduced to 50,000tpa of product output starting 2024, with a ramp up to an unspecified output over the next three years, presumably to 165,000tpa.

The reasons given for the reduced size of the starter plant appear to centre on China, which was flagged in the Andromeda DFS for special mention as a major source of growth. Andromeda management noted that negotiating offtake deals was made very difficult by the continuing COVID lockdowns still occurring in China and the related restrictions on inbound visitors.

Suvo appears to be concentrating on expanding its existing Pittong Victoria kaolin operation from around 26Ktpa to 50ktpa or 60Ktpa, and fast tracking its Eneabba Silica Project, while its Gabbin kaolin project in Western Australia appears to be on the back burner.

Both competitors are targeting 50-60Ktpa of initial production compared to 200Ktpa for WA Kaolin.

## ***Valuation supporting a price target of A\$0.60/sh***

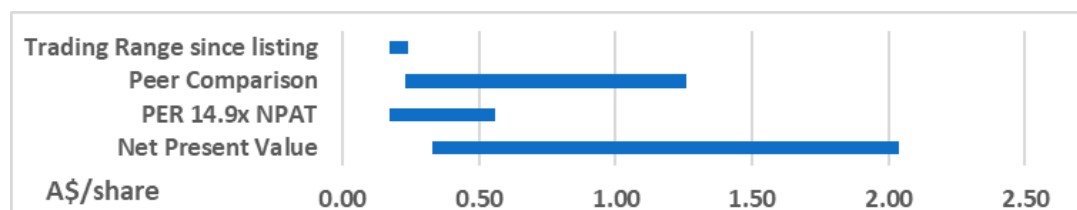
***On NPV, worth A\$0.34/sh to A\$2.49/sh depending on how many stages of growth are priced in.***

***On Earnings from FY24 to FY26, at 14.9x market average PER, worth A\$0.17/sh to A\$0.56/sh.***

***On Resources compared to peers, A\$0.21/sh to over A\$1.24/sh.***

***Trading range in the last 12 months has been A\$0.17/sh to A\$0.24/sh***

**FIGURE 1 VALUATION SUMMARY (A\$/SH)**



Source: Breakaway estimates

Our 12-month price target is focussed on where the company will be in the middle of 2024, when Stage 1 will be demonstrating its cash flow potential and Stage 2 will be ramping up, with potential for sales and earnings guidance. We see near term earnings as posing some limit on how high the share price will go in the next six months, but as visibility of positive earnings improves, the share price is likely to rise, driven by both the actual earnings/guidance and evidence of what we expect to be a very high return on invested capital.

### **Price target of A\$0.60/sh based on Stage 1 NPV and 52% of Stage 2 valuation uplift**

The price target of A\$0.60/sh has been adopted and is a blend of valuations. Stage 1 alone has a Net Present Value of A\$0.34/sh, and Stages 1 and 2 NPV is A\$0.84/sh, and uplift of A\$0.50/sh. The price target is Stage 1 NPV of A\$0.34/sh plus 52% of the uplift of Stage 2, effectively implying a risked valuation of Stage 2.

In Table 2, Stages 3 and 4 refer to Breakaway estimates of what two 250Ktpa wet plant stages would look like, based on Andromeda costs. Adding 500Ktpa of wet plant capacity increases total output to 900Ktpa, and the Net Present Value to over A\$2/sh. This is not going to happen soon but is a guide to the underlying growth potential of the company's business.

**TABLE 2 NET PRESENT VALUE ON DELIVERY OF DRY STAGES 1 & 2, AND WET STAGES 3 & 4**

A\$/sh	Stage 1	Stage 2	Stage 3	Stage 4
Wickepin Dry	0.47	0.97	0.97	0.97
Wickepin Wet	0.00	0.00	0.97	1.66
Corporate Overhead	-0.09	-0.09	-0.09	-0.09
Cash on hand	0.01	0.01	0.01	0.01
Debt	-0.06	-0.06	-0.06	-0.06
Net Working Capital	0.00	0.00	0.00	0.00
Valuation	0.34	0.84	1.81	2.49
Capacity Ktpa	382.01	400.00	650.00	900.00

Source: Breakaway estimates, refer to Tables 1 and 13 for assumptions

### **Earnings based valuation range A\$0.17/sh to A\$0.56/sh or more on a growth PER**

Valuing earnings at the average market multiple of 14.6x NPAT, Stage 1 only generates a valuation of A\$0.17/sh to A\$0.22/sh, so the current share price is valuing the company on Stage 1 FY24 earnings only. On Stage 2 earnings, the valuation shifts to A\$0.41/sh to A\$0.56/sh, with the higher number supportive of the price target.

As discussed previously, WA Kaolin should trade at a premium to the market average PER because of its strong return on invested capital and the likelihood its growth rate will be higher than the market average, so valuing the company on Stage 1 earnings only would be a gross undervaluation.

The first clear view of positive earnings is likely to be the December 2023 half, but it is possible that the company will provide guidance that could focus the market's attention earlier.

**TABLE 3 WA KAOLIN FORECAST EARNINGS AND VALUATION AT THE AVERAGE MARKET PRICE EARNINGS RATIO**

	FY23	FY24	FY25	FY26
NPAT A\$M				
Stage 1	-2.10	4.05	5.70	6.99
Stage 2	-2.10	4.05	12.76	18.20
NPAT cps				
Stage 1	-0.55	0.85	1.18	1.36
Stage 2	-0.55	0.85	2.64	3.50
Valuation at 14.9x NPAT A\$/sh				
Stage 1	-0.09	0.17	0.18	0.22
Stage 2	-0.09	0.17	0.41	0.56

Source: Breakaway estimates, Market PER from <https://www2.asx.com.au/markets/company/PER>



### Comparative valuations appear to cluster between A\$0.61/sh to A\$1.24/sh

WA Kaolin has been compared to its closest comparable companies, Andromeda and Suvo Strategic. In summary, this analysis has thrown up eight valuations, from A\$0.21/sh to A\$1.24/sh ignoring an outlier of A\$5.74/sh.

Within the range, two were very close at A\$0.61/sh and A\$0.66/sh (both relating to comparisons with Suvo). There is also a cluster around A\$1/sh (A\$0.93/sh, A\$1.05/sh and A\$1.24/sh) which are all related to Andromeda.

The comparisons use three metrics: Stage 1 kaolin production capacity, and both Reserve and Resource tonnage in contained kaolin/halloysite.

Table 4 summarises the resultant valuations based on WA Kaolin's Stage 1 production capacity of 200Ktpa, its total Resource of 664Mt of granite which reduces to 284Mt of contained kaolin, and its Reserve of 30.5Mt of granite (15.3Mt kaolin), which is based on 109.1Mt of the 664Mt Resource.

WA Kaolin doesn't emphasise its large total Resource and has in major releases referred only to the 109.1Mt Resource from which the Reserve is derived (eg in the DFS). For the analysis below both 284Mt and 54.6Mt of contained kaolin have been used, adding some complexity but also highlighting that the \$5.74/sh valuation shouldn't be taken too seriously. Note that the reduced valuation of A\$1.05/sh is still very positive.

**TABLE 4 VALUATIONS USING TONNAGE COMPARISONS WITH ANDROMEDA AND SUVO**

WA Kaolin Comparative Valuation	High Value EV A\$/t	Low Value EV A\$/t	High Value Implied WAK EV A\$/M	Low Value Implied WAK EV A\$/M
On Production of 200Ktpa	715-2187	472	143-437	94
On Resource of 54.6-284Mt kaolin	6.81	0.80	372-1934	227
On Reserve of 15.3Mt kaolin	21.9	15.8	334	241
	Implied WAK Share Price A\$/sh		Implied WAK Market Capitalisation A\$/M	
On Production of 200Ktpa	<b>0.36-1.24</b>	<b>0.21</b>	120-414	71
On Resource of 54.6-284Mt kaolin	<b>1.05-5.74</b>	<b>0.61</b>	354-1911	204
On Reserve of 15.3Mt kaolin	<b>0.93</b>	<b>0.66</b>	311	218

Source: Breakaway estimates based on the data in Table 5 below

Some licence has been taken in calculating the EV\$/t or EV\$/tpa and the logic is shown in the table below. Investors should use these numbers with caution, and at best they are a back-check on the other valuation tools discussed above.

In the case of Andromeda, the April DFS has a Stage 1 of 153Ktpa of product, but in its release of 26 August 2022, the company says it is starting production at 50ktpa of product and will ramp up as sales contracts permit. We have used both production rates, which is why the high-end value for the production metric ranges from A\$0.36/sh to A\$1.24/sh

In the case of Suvo, it has the Gabbin project, with a scoping study of 2021, and the currently operating Pittong business, which is expanding to 60ktpa. Because the company news flow appears focussed on Pittong not Gabbin, we have assumed the Stage 1 capacity for Suvo is 60Ktpa from Pittong and have excluded the 200ktpa at Gabbin. Gabbin has been included in Suvo's Resource, but not in the 3.7Mt figure quoted as a Reserve. Suvo has yet to report any Reserves, and this figure is the Pittong Indicated Resource, which we have used to approximate a Reserve for this analysis.

TABLE 5 ORIGINAL DATA USED TO CALCULATE VALUATION COMPARISON MULTIPLES

	WAK WA Kaolin	ADN Andromeda	SUV Suvo
Commodity	Kaolin	Kaolin	Kaolin
Issued Shares M	333.0	3110.0	683.9
Share Price 31/10/22	0.185	0.044	0.050
Capitalization A\$M	61.7	136.8	34.2
Cash @ 30/9/22 A\$M	2.9	27.6	6.8
Debt 30/9/22 A\$M	26.2	0.1	0.9
Current EV A\$M	84.9	109.4	28.3
Performance Shares M	27.5	22.3	25.4
Options M	167.2	69.5	143.3
Diluted Shares M	528.0	3201.8	852.6
Diluted Cap. A\$M	97.7	140.9	42.6
Options Cash A\$M	48.3	33.3	16.3
Debt A\$M	26.2	0.1	0.9
Diluted EV A\$M	75.5	107.7	27.3
EV/t Kaolin			
On Resources	1.56-0.30	6.81	0.80
On Reserves	5.57	15.78	21.86
Resource Granite Mt	109-644	34.6	78.2
Reserve Granite Mt <sup>1</sup>	30.5	15.1	3.7
Resource Kaolin Mt	54.6-284	16.1	35.4
Reserve Kaolin Mt	15.3	6.9	1.3
Stage 1 Production	200	153-50	60
Status	Ramp up	Construction	Ramp up
EV\$/tpa Stage 1 production	425	715-2187	472

Source: Share structures from the Appendix 2A releases for WAK 8 March 2022, SUV 8 November 2022; and ADN from its 2022 annual report cash and debt come from the September 2022 quarterly 5B cash statements, and the resources and reserves come from WAK's IPO prospectus 20 November 2020, SUV's releases on 27 May 2021, 22 September 2021 and 1 March 2022, and for ADN its DFS release of 6 April 2022. Note 1: Suvo Reserve is the Indicated Resource for Pittong

The table includes an analysis of Enterprise Value before and after option and performance share dilution, but the after-dilution Enterprise Values have not been used in any further analysis.

## ***Discussion on kaolin pricing and comparison with peers***

### ***Introducing kaolin***

Kaolin is not a commodity that most investors would be familiar with. It falls into the Industrial Feedstock category where there is not a publicly visible trading market for price discovery like the London Metals Exchange for base metals. Sales are under long term contracts negotiated between businesses based to a considerable degree on trust: trust the supplier will deliver and trust the buyer will accept product.

Kaolin is impure and there are product specifications that are critical to the performance of the product in the consumer's process. For example, where kaolin is used in paper manufacture, it is essential its whiteness is not tainted by minerals that can cause coloured stains like iron oxide.

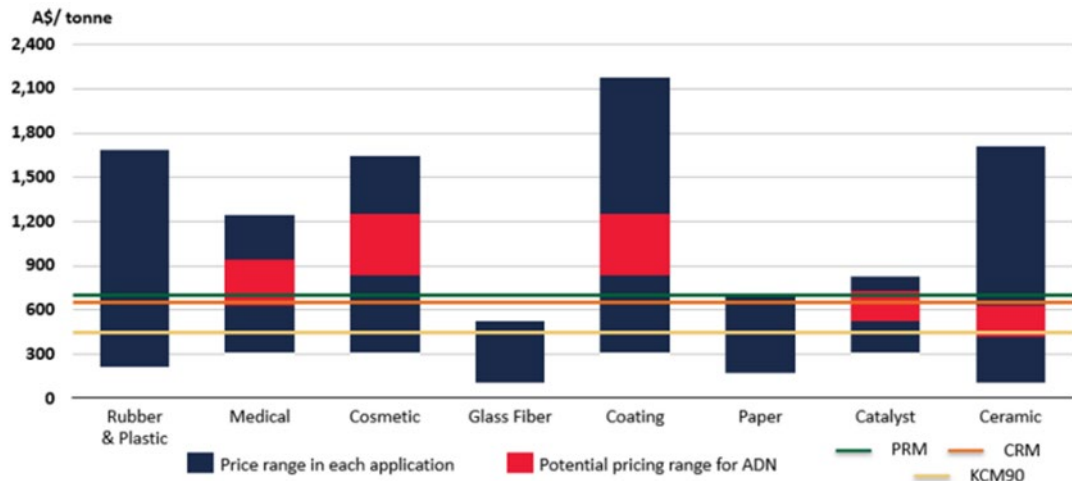




## Prices from US\$140/t to US\$200/t depending on application and specification

The figure below shows the various usages of kaolin and the price range of products within each usage. The lower value usages include fibre glass, paper, and catalysts, but even within those usages, the price can range from US\$140/t to US\$800/t. Overall the price range can be up to over US\$2000/t.

FIGURE 2 PRICE RANGES WITHIN EACH CATEGORY OF USAGE



Source: TZMI private communications 2022

Source: Andromeda DFS 6 April 2022

## Breakaway earnings forecasts use 2021 DFS price assumptions

Table 1 details our price assumptions for our WA Kaolin earnings forecasts. From FY24 the prices used are as delivered to customers in Asia (ie A\$/t CIF basis delivered to the customers port of choice). Our forecast assumptions are from the 2021 Definitive Feasibility Study from FY24. In FY23, the model uses a higher sea freight cost and a higher CIF price to match. We have used the DFS prices because they are the last guidance provided by the company, and because the contract structures are likely to contain some base price plus escalator, as well as some kind of market related price adjustment, and if anything, those prices are likely to be conservative. In a later section of this report, there is evidence presented of multiple list price increases in the US due to upward pressure on US operating costs (pp 20 and 22), which suggest that WA Kaolin pricing is either conservative and likely to be improved on or is likely to attract more Stage 2 buyers either because it is discounted or more stable.

## Comparing pricing strategies

WA Kaolin has pioneered a dry (air float) process for refining the raw kaolin into the required product specifications. Dry processing is unable to produce the very high-end quality specifications. However, the lower prices applications are also where the highest volumes of demand can be found. WA Kaolin has a large Resource, a process that is low cost in terms of up-front capital and is in line on operating costs with the proposed new project of Andromeda and Suvo (Table 6), and lower operating cost than Suvo's Pittong operation (Table 7).

The lower priced applications are also where the largest offtake tonnages can be found, and WA Kaolin has been able to contract 180Ktpa of its planned 200Ktpa initial capacity and will be building credibility as a supplier as it moves towards a doubling of capacity to 400Ktpa. It has done this at an average selling price of A\$264/t or US\$175/t.

In Table 6, the price assumptions of the Great White and Gabbin (White Cloud) projects are compared to Wickepin. The first WA Kaolin column is from the DFS and shows a price of US\$316/t CIF. This is the average of the first 12 years and includes a component of real price inflation over that period.



The others have much higher price expectations at A\$653/t and A\$720/t. WA Kaolin's strategy of selling at lower prices into higher volume markets appears to have allowed it to successfully place 90% of Stage 1 production. This contrasts with Suvo's lack of progress at Gabbin, and Andromeda's decision to reset initial production to 50Ktpa due to the difficulty contracting its 150Ktpa Stage 1 sales. Overall, the strategy of low price high/volume appears to be lower risk.

TABLE 6 KEY METRICS FOR THE PROJECTS OF WA KAOLIN, ANDROMEDA, AND SUVO STRATEGIC

	WA Kaolin Wickepin	Andromeda Great White	Suvo Gabbin
DFS or Scoping Study date	20 Nov 2020	6-Apr-22	27-May-21
Stage 1 Ore Feed K dmtpa	500	300	500
Yield	40%	50%	40%
Kaolin Prodn K dmtpa	200	151	200
Life Years	75	28	25
Capex to Main Stage A\$M	18	94	68
Working Capital A\$M	5	26	18
Total Capex A\$M	23	120	86
Capex A\$/t	115	793	430
Kaolin Price A\$/t	316	653	720
Kaolin OpEx A\$/t	222	220	256
<b>All In Sustaining Costs A\$/dmt Product</b>			
Mining	9.6	32.0	23.0
Site Processing and Refining	132.9	104.0	
Administration	2.7	17.0	
Shipping	47.3	43.0	
Corporate	5.6	3.0	
Processing Admin, Freight	188.4	167.0	209.0
Royalties	23.0	17.0	20.0
Sustaining Capex	1.1	4.0	4.0
<b>All In Sustaining Cost</b>	<b>222.1</b>	<b>220.0</b>	<b>256.0</b>

Source: WA Kaolin DFS 20 November 2020 P100, Andromeda DFS 6 April 2022 p22,36, Suvo Scoping Study 27 May 2021

## Cost comparison

TABLE 7 COMPARISON OF COSTS FOR SUVO'S PITTONG VS WA KAOLIN'S WICKEPIN

	SUV July 22-Mar 23	SUV June 23 Qtr	SUV FY24	WAK FY23	WAK FY24
Production tonnes	17850	12500	50000	50000	180000
Cash Operating Cost A\$/t product	492	351	328	208	201
General and Administration A\$/t	46	25	23	89	29
Marketing Costs A\$/t				3	3
Sustaining Capital A\$/t	54	8	8	5	3
All in Sustaining Cost AISC A\$/t	592	384	359	305	236
<b>Annualised Costs A\$M pa</b>					
Cash Operating Cost	11.7	17.6	16.4	10.4	36.2
General and Administration	1.1	1.3	1.2	4.5	5.3
Marketing Costs				0.2	0.5
Sustaining Capital	1.3	0.4	0.4	0.2	0.5
All in Sustaining Cost (AISC)	14.1	19.2	17.8	15.2	42.5

Source: Suvo guidance 26 August 2022, IIR estimates for WAK FY23 and FY24. Note Cash Operating Cost includes Royalties for WA Kaolin, and we assume for Suvo Pittong. The Marketing Costs for Pittong may also be included in Operating Cost.

The cost information in the tables above highlights that WA Kaolin is not a low operating cost compared to the other new projects that are aiming for scale at 150ktpa to 200ktpa but is low cost compared to the smaller volume Pittong operation.



WA Kaolin is lower cost compared to Suvo's existing producer at its Pittong plant, given the detail provided on its expansion from 25ktpa capacity to 50,000tpa. In recent releases, Suvo believes the capacity will be closer to 60,000tpa, but the table below just focusses on the data in the release of August 2022.

Pittong is a wet process and sells at a premium to the prices that WA Kaolin is contracting. That is a necessity because of Pittong's cost structure, which has been breakeven or loss making in recent times. The economics are expected to improve post expansion which appears to achieved lower unit operating cost largely due to the shift to higher volumes.

## **Risks**

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### **Access**

The company has access agreements for tenement M70/1143, which are sufficient to support Stages 1 and 2. At some point, additional access must be negotiated to permit expansion to continue.

### **Funding risk**

The company has completed Stage 1 construction and has spent \$3.66M of the revised Phase 2 A\$16M cost. The exercise of existing options should generate A\$45.3M by 2025 if the share price exceeds A\$0.35/sh, or A\$32.9M if it trades between A\$0.25/sh to A\$0.35/sh.

The major funding requirements are:

- the Stage 2 capital expenditure are a bit over A\$12M at September 2022 (see below);
- the repayment of debt of A\$24.3M with A\$13.5M due by 20 September 2023; and
- working capital for the Stage 1 and Stage 2 ramp ups.

The Wickepin Operation combined with corporate overheads is likely to need some cash in FY2023 but will be cash flow positive in FY24 if operating at our assumed 180Ktpa of product sold.

If the options are exercised, WA Kaolin is fully funded to meet all these commitments on our forecast assumptions.

If the options are not exercised in the next three months, the company cash on hand at 30 September 2022 of A\$2.9M will need to be augmented. The size of the debt or equity raise will depend on the pace of the Stage 2 spend.

In the absence of alternative funding, the board has the discretion to defer A\$19M of the debt to be (see Debt analysis p26), leaving A\$5M repayable to Boneyard by 14 Feb 2025, which would be achievable on Stage 1 only cash flows. Evidence of this is in the September 2022 5B cash report where the shareholder loans are omitted from the outstanding loans section (5B Note 7).

The funding for Stage 2 expansion can be deferred to the extent the company has not yet committed, and we would assume any commitments would have to be funded.

On balance, we believe that the Board has the tools to manage in the event the share market is unsupportive, and the options are not exercised. The consequences will be a delay in the start-up of the strongly positive Stage 2 and debt deferral, but without threatening the solvency of the company.

### ***Analysis of outstanding Stage 2 Capital expenditure (A\$12.3M at 30 September 2022)***

The project capital spend in FY22 was A\$9.986M and the total spend post IPO to 30 June 2022 was A\$17.453M and A\$19.453M in total, of which A\$18M is commissioned and depreciable, and the

balance relates to Stage 2. Of the Stage 2 spend, we estimate that A\$1.45M was spent prior to 30 June 2022, and another A\$2.21M was spent in the September 2022 quarter.

**TABLE 8 USE OF FUNDS COMPARED TO PROSPECTUS AND ESTIMATE OF STAGE 2 CAPITAL SPEND REMAINING (A\$14.6M)**

A\$'000	Prospectus	FY21	FY22	Qtr 9/22	Act to 9/22
Existing cash reserves	2950	2950			2950
Funds raised from public offer	22000	22000			22000
<b>Total Sources</b>	<b>24950</b>	<b>24950</b>			<b>24950</b>
Capex Wickepin – Stage 1	16000	7467	8536		16003
Capex Wickepin – Stage 2	0		1450	2210	3660
IPO Cost (including convertible note interest)	1660		185		1785
Owner's Loans	700	810			810
Debt Reduction	1800	1800			1800
Creditors	200	200			200
Working Capital	1640		1396		4172
<b>Total Uses</b>	<b>22000</b>				<b>28430</b>

Source: WAK quarterly activities reports for June 2022 and September 2022

Table 8 workings include the following:

- Stage 1 A\$18M of which A\$2M was from pre IPO funds leaving a net A\$16M.
- Stage 2 Prospectus costs was A\$13.6M. With inflation and COVID related contingencies of A\$2.4M that becomes A\$16M of which A\$1.45M was spent in FY22 (estimated) with balance of A\$14.55M to spend at 30 June 2022.
- In the September quarter another A\$2.21M was spent, so from 30 September 2022 there is A\$12.3M spend remaining.

### Selling price risk

The prices assumed in the Definitive Feasibility Study and assumed in the financial modelling in this report start towards the lower end of the range of typical prices, and then grow over time as the company builds its reputation in the market and refines its sales portfolio. While noting there is no kaolin spot market, representative kaolin pricing has been in a very stable uptrend for decades, and barely changed during the 2008 GFC. and the 2020 COVID 19 event (Figure 10). Every 5 years there appears to be a couple of years of around 4%pa price increases followed by a couple of years of around 1% decreases. Historically, the price volatility is at very low levels.

This appears to have changed in 2022 as a result of the high US inflation, energy price volatility, and the war in Ukraine. This is discussed in more detail on pages 20 and 22.

### Sales volume risk

WA Kaolin will be selling a substantial proportion of its sales through distributors on short term contracts. WA Kaolin's ability to ramp up will be dependent on its distributors' ability to make sales. This risk is less about the survival of the company and more about the likely rate of growth, and the timing of the Stage 2 expansion. The Stage 1 project is largely underwritten by the Stanco (DTT) offtake agreement which required Stanco to take a minimum tonnage in each contract year.

The company has indicated it has contracted 180Ktpa out of the Stage 1 200Ktpa. The main contracting risk now lies with selling the output of Stage 2 which is assumed to be operating at a 190Ktpa rate from around October 2025. Table 9 shows details of the announced contracts, with six other customers identified in Table 20, but without volume details.

TABLE 9 ANNOUNCED CONTRACTS (WA KOALIN HAS REPORTED CONTRACTS IN PLACE FOR 180KTPA)

	FY23	FY24	FY25	FY26	Total
<b>Maximum</b>					
Stanco DTT Offtake Agreement	57600	75504	138360	57600	329064
1 March 2021 Contract delayed 12 months		10000	10000	10000	
1 April 2021 Contract delayed 12 months		4500	4500	4500	
Total Maximum	57600	90004	152860	72100	329064
<b>Minimum</b>					
Stanco DTT Offtake Agreement	46080	60403	110688	46080	263251
1 March 2021 Contract delayed 12 months		3000	3000	3000	
1 April 2021 Contract delayed 12 months		2500	2500	2500	
Total Minimum	46080	65903	116188	51580	263251
Breakaway Sales Est tonnes	50000	180000	190000	190000	610000

Source: WAK Prospectus 24 November 2020 pp203-205, WAK March 2022 quarterly activities report

### Project Delivery Risk

The company has reported that the Stage 1 construction was completed for A\$18M in line with the prospectus forecast (ie A\$2M before the IPO and A\$16M after). Capital risk in our forecasts now relates to the construction of Stage 2 and any wet processing project in the future. Given the company's performance on project delivery to date, we believe capital cost risk in low.

### Financial Forecasts

TABLE 10 PROFIT AND LOSS (MODELLED ON STAGE 1 AND STAGE 2 PER THE DFS EXPANSION PHASE)

PROFIT & LOSS	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27
Revenue	1.50	15.50	51.86	92.17	116.60	120.33
Operating Costs	-0.86	-12.51	-39.33	-66.71	-83.10	-86.30
Corporate OH	-3.77	-2.50	-2.68	-2.75	-2.82	-3.01
Share Based Payments	-2.20	-2.04	0.00	-0.51	-1.02	0.00
Costs	-6.83	-17.04	-42.01	-69.97	-86.94	-89.31
EBITDA	-5.33	-1.54	9.85	22.20	29.67	31.02
D&A	-0.29	-0.50	-1.80	-3.10	-3.80	-3.80
EBIT	-5.62	-2.04	8.05	19.10	25.87	27.22
Interest Costs	0.02	-1.17	-0.84	-0.17	0.14	0.38
Financing Costs	-1.95	0.22	-1.43	-0.70	0.00	0.00
PBT	-7.55	-3.00	5.78	18.23	26.01	27.60
Tax Expense	0.00	0.90	-1.73	-5.47	-7.80	-8.28
NPAT	-7.55	-2.10	4.05	12.76	18.20	19.32
Dividend \$M	0.00	0.00	0.00	8.42	12.01	12.75
Franking	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
Shares on Issue	333	382	476	483	519	519
Diluted Shares on Issue	528	528	528	528	528	528
Adj EPS A\$/sh	-0.014	-0.004	0.008	0.024	0.034	0.037
Options on Issue M	194.73	145.71	52.00	44.25	8.25	8.25

Source: Breakaway estimates

In the prospectus (p49 Section 3.9), the company has undertaken to distribute 66% of distributable earnings to shareholders when it is able to do so. It does not expect to be able to do so in "near future", which we interpret to mean until Stage 2 is completed.

The financing cost includes the adjustment to increase the debt each year as the discount unwinds. This relates to the loans at zero interest from the original project sponsors. These debts have been discounted in the balance sheet, and an unwinding of provision charge is booked each year.

TABLE 11 CASH FLOW ASSUMING SOME OPTIONS ARE EXERCISED TO PAY FOR STAGE 2

CASH FLOW	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27
Receipts From Customers	1.10	14.41	47.38	87.20	113.59	119.87
Payments to Suppliers	-5.87	-17.82	-40.64	-68.37	-86.01	-89.18
Cash Flow from Operations	-4.77	-3.42	6.73	18.83	27.58	30.69
Interest Received	0.02	0.01	0.03	0.11	0.14	0.38
Financing Costs	-0.72	-1.18	-0.87	-0.28	0.00	0.00
Taxes Paid	0.00	0.00	0.00	-1.73	-5.47	-7.80
Net Cash from Operations	-5.13	-4.59	5.89	16.92	22.26	23.27
PP&E	-0.77	0.00	0.00	-0.46	-0.46	-0.46
Mine Development	-10.06	-7.23	-7.78	0.00	0.00	0.00
Investing Activity	-10.83	-7.23	-7.78	-0.46	-0.46	-0.46
Issues/Option Conversion	9.04	11.54	23.43	2.26	11.69	0.00
Forward Sales	0.00	0.00	0.00	0.00	0.00	0.00
Dividends	0.00	0.00	0.00	0.00	-8.42	-12.01
Net Borrowings	2.72	-0.36	-13.47	-12.41	0.00	0.00
Financing Costs	-0.35	0.00	0.00	0.00	0.00	0.00
Financing Activity	11.40	11.18	9.95	-10.15	3.27	-12.01
FX Difference	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase in Cash	-4.55	-0.64	8.07	6.32	25.07	10.79
YE Cash on Hand	6.37	5.73	13.79	20.11	45.18	55.97

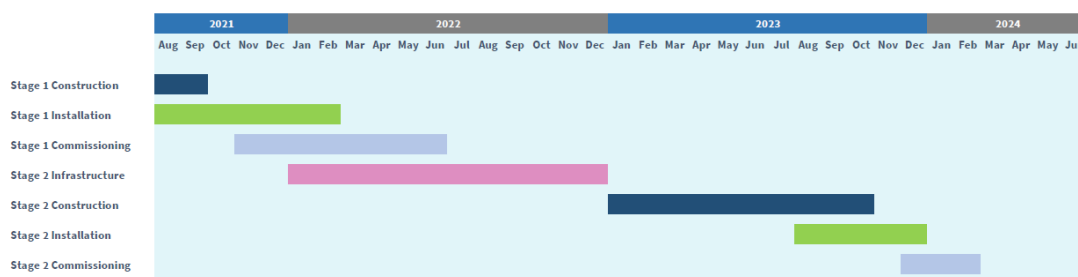
Source: Breakaway estimates

Cash flow assumes some exercise of options to fund the construction and working capital requirements of Stage 2. Given the exercise price of A\$0.25/sh is close to the current market price, we do not see this as a demanding assumption. In the event there is no exercise, we would expect either debt funding, an equity issue, or the delay of completion of Stage 2.

### Stage 2 capital expenditure

Our base case assumes that Stage 1 reaches 90% of capacity in FY23 and averages that level for FY24, and Stage 2 reaches 90% of capacity in FY25 and averages that level for FY26.

FIGURE 3 SPENDING ON STAGE 2 IS EXPECTED TO CONTINUE THROUGH 2023 INTO 2024



Source: WAK quarterly activities report for the March 2022 quarter

The PP&E at June 2022 of A\$24.9M is estimated to include A\$18M for Wickepin Stage 1, and \$1.45M for Stage 2, with the balance being mainly the Kwinana Pilot Plant, which is continuing to operate as an R&D facility working up the wet plant processing technology.

The debt in the balance sheet includes zero interest debt which has been discounted from face value. Please refer to the discussion of the debt on page 26.



TABLE 12 BALANCE SHEET

BALANCE SHEET	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27
Cash	6.36	5.73	13.79	20.11	45.18	55.97
Receivables	0.82	1.91	6.39	11.36	14.38	14.84
Inventories	0.43	1.40	3.45	5.75	7.15	7.34
Total Current Assets	7.61	9.04	23.64	37.22	66.70	78.14
PP&E	4.96	4.86	4.59	4.67	4.62	4.53
Expln & Mine Devt	20.04	26.87	33.13	30.40	27.11	23.86
Deferred Tax Asset	0.00	0.90	0.90	0.90	0.90	0.90
Total Non Current Assets	25.00	32.63	38.61	35.97	32.63	29.29
Total Assets	32.62	41.67	62.25	73.19	99.33	107.43
Trade Payables	2.15	2.33	5.76	9.65	11.97	12.30
Borrowings	24.33	23.75	11.70	0.00	0.00	0.00
Current Tax Liabilities	0.00	0.00	1.73	5.47	7.80	8.28
Provisions	0.67	0.67	0.67	9.10	12.69	13.42
Total Liabilities	27.15	26.76	19.87	24.21	32.46	34.00
Net Assets	5.47	14.91	42.38	48.98	66.86	73.43
Issued Capital	42.30	53.84	77.27	79.53	91.22	91.22
Reserves	35.89	35.89	35.89	35.89	35.89	35.89
Retained Profits	-72.73	-74.82	-70.78	-66.44	-60.25	-53.68
Shareholder Equity	5.47	14.91	42.38	48.98	66.86	73.43

Source: Breakaway estimates

TABLE 13 THE 7% USED IN THE DFS IMPLIES A BETA OF 1.50

Cost of Equity		Source
Beta Range	1.50	Andromeda 1.11, Suvo 2.57
Risk free rate (Rf)	3.90%	<a href="https://www.rba.gov.au/statistics/tables/">https://www.rba.gov.au/statistics/tables/</a>
Market Risk premium (Rm)	3.33%	<a href="http://www.market-risk-premia.com/au.html">http://www.market-risk-premia.com/au.html</a>
Market premium (Rm)	7.23%	
Cost of Equity	<b>8.87%</b>	<b>Ke = Rf + Beta(Rm - Rf)</b>
Nominal WACC		
Cost of Equity Ke	8.87%	
Cost of Debt Kd	6.0%	Per WAK prospectus
Gearing D/(D+E)	40.0%	
Gearing E/(D+E)	60.0%	
Tax Rate	30.0%	
Weighted Average Cost of Capital (Ke)	7.00%	$W = (Ke * (E/V)) + (Kd * (1-t)*(D/V))$

Sources: As noted in table, or Breakaway estimates

WA Kaolin's share price history is too short for a beta to be calculated. Its peers have beta estimates ranging from Andromeda at 1.11 to Suvo at 2.57 and the others falling within that range. A 1.50 beta generates the DFS discount rate of 7% which appears reasonable to us, given the stage of the project, and a lower beta would be reasonable once the project reaches full Stage 1 production.





## Project Fundamentals

### Project Recap

Brief history (from WA Kaolin March 2022 Quarterly report)

*“The Company acquired the Wickepin Project in 1999 from Rio Tinto which, through exploration, had discovered and drilled out a Mineral Resource and commissioned engineering and feasibility studies. The acquisition included the tenements covered by the Wickepin Project and all associated engineering and feasibility studies.*

*“Since then, WA Kaolin co-founders and owners have invested over \$42 million to develop and progress the Wickepin Project. Through extensive R&D of product and processes, the Company has spent significant time and funds in optimising its proprietary dry processing method for kaolin (“K99 Process”) to build and extend on its success as a kaolin producer and exporter to global markets.*

*“As part of the process, the Company has undertaken trial mining and processing to ensure proof of concept and to produce product for, amongst other things, establishing customer confidence and price discovery.”*

WA Kaolin entered the listed market on 24 November 2020, accompanied by a prospectus and a very detailed Definitive Feasibility Study, in total running to 719 pages.

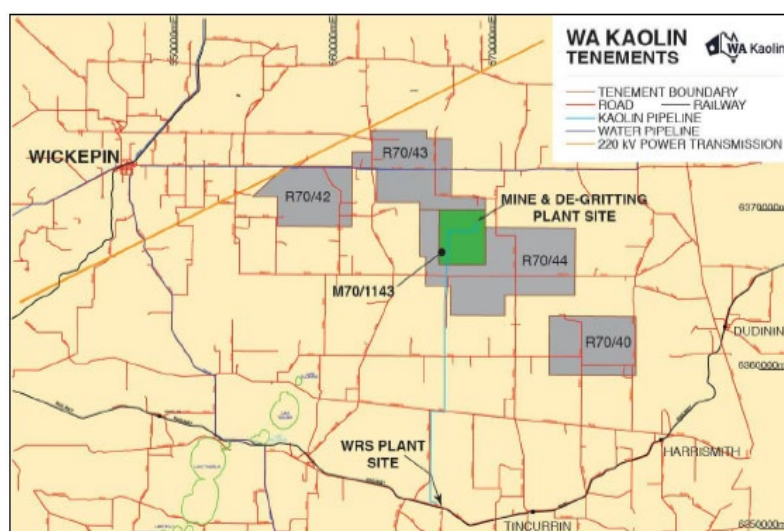
WA Kaolin operations include an existing pilot plant, the completed Wickepin Stage 1 and the under construction Stage 2.

1. WA Kaolin constructed and since April 2017 has been producing ultra-bright kaolin from a 20,000tpa capacity commercial processing plant using full scale equipment on three hectares of portside industrial land at Kwinana, near Fremantle in Western Australia. The plant was originally constructed as a pilot plant to prove up the company’s proprietary K99 dry processing technology, and now is currently shipping commercial container quantities to major producers and customers, through the ports of Fremantle and Bunbury. This plant has been critical to WA Kaolin achieving market acceptance for its product.
2. Stage 1 of the Wickepin Project includes a mine and two K99 dry processing modules at site at a cost of around A\$18M, which was completed on 27 June 2022 with first mining in August 2022 and commissioning concluding on 29 September 2022 followed by ramping up to its capacity of over 200,000tpa of Kaolin products. Sales contracts for 90% of capacity were in place on 1 April 2022.
3. Stage 2 involves the construction of two additional K99 dry processing modules at site allowing the ramp up of production to over 400,000tpa of Kaolin products. The total cost of Stage 2 is the original DFS estimate of A\$13.6M plus inflation and COVID contingency of A\$2.4M giving a total cost of A\$16M. The company raised A\$4.5M allocated to Stage 2 capital spend in the issue announced on 9 February 2022, leaving a net A\$11.5M to come from cash flow and issuance of options (source: WAK release 9 February 2022).
4. Stage 3 is likely to be the construction of a 260,000tpa capacity plant based on wet processing technology, to allow WA Kaolin to sell higher quality specification products into higher priced applications (Prospectus p19). This would be similar technology to that proposed by Andromeda and Suvo. Using those companies as a template, a wet process plant of that size would probably cost around A\$80M which we assume has become A\$100m with inflation and COVID related contingency. Our upside case includes the addition of a Stage 4, ie a doubling of Stage 3.

### Location

The Wickepin Kaolin Project is located 220Km southeast of Perth, Western Australia. The plant will be split between the mine site and a site adjacent to an existing rail line, providing low-cost bulk transport to the ports of Bunbury and Freemantle.

FIGURE 4 TENEMENT MAP



Source: Prospectus Snowden Report p8

### Resources and Reserves: Sufficient to support expansion to over 1Mtpa

WA Kaolin is starting production at 200,000tpa of kaolin product, from tenement M70/1143. That tenement has a reserve of 15.8Mt of recoverable kaolin. Even at 1Mtpa of kaolin product, the current Reserve would have over 15 years life. Expanding production would be supported by a further 19.3Mt of recoverable kaolin which is currently Inferred Resource in M70/1143 (Table 15), and a further 229Mt of recoverable kaolin from WA Kaolin's other tenements (Table 14).

TABLE 14 PREVIOUS GLOBAL RESOURCE INCLUDING M70/1143

2017 Resource	Kaolinised Granite Mt	Brightness	Yield	Kaolin Mt
R70/40	73.4	77.7%	51.5%	37.8
R70/42	107.2	72.1%	40.7%	43.6
R70/43	210.7	74.4%	41.9%	88.3
R7/44	142.9	73.7%	41.2%	58.9
M70/1143	109.1	82.4%	50.0%	54.5
Total	644.5	75.8%	44.0%	283.6

Source: WAK prospectus Snowden Report p29

TABLE 15 RESOURCE AND RESERVE CONTAINED WITHIN THE M70/1143 MINING LEASE

	Kaolinised Granite Mt	Brightness	Yield	Kaolin Mt
<b>2019 Resource</b>				
Measured	38.0	82.0%	56.1%	21.3
Indicated	27.7	83.0%	50.2%	13.9
Inferred	43.3	83.0%	44.6%	19.3
Total	109.1	82.0%	50.0%	54.5
<b>2020 Reserve</b>				
Proved				
Probable	30.5	83.7%	51.8%	15.8
Total	30.5	83.7%	51.8%	15.8
Conversion	46.4%			44.9%

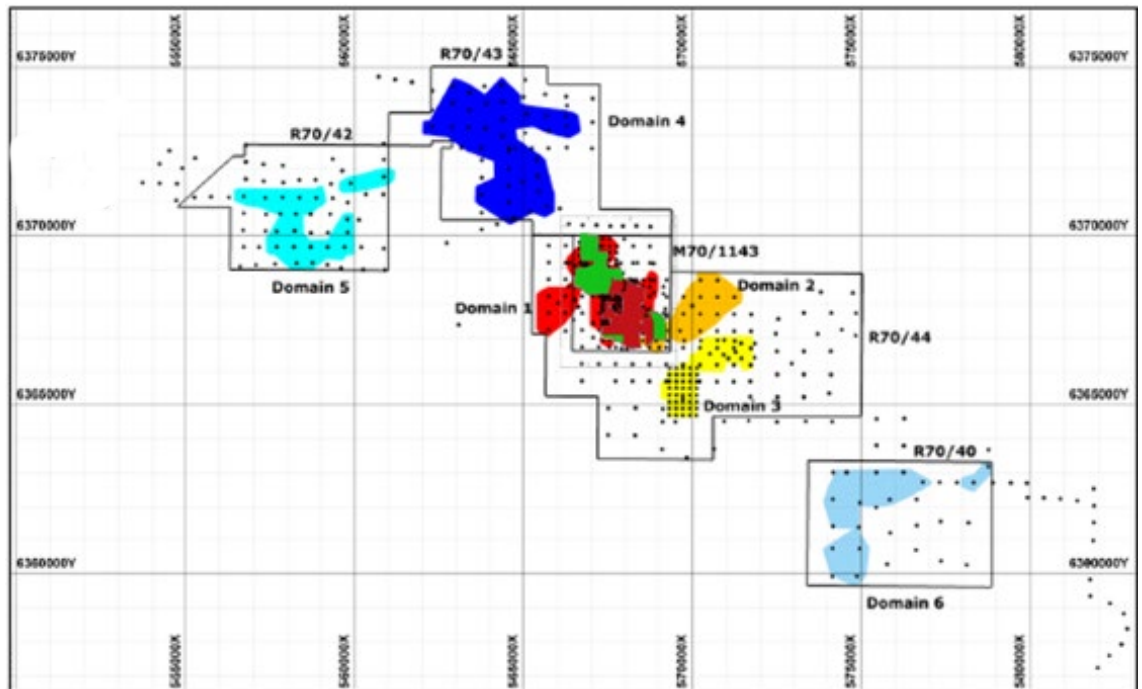
Source: WAK prospectus Snowden Report p28 with reserve outline from WAK DFS Part 3 CSA Report p28

From a Reserve/Resource perspective, this company is in the same category as a Pilbara iron ore producer. It has title to a mineral endowment that will allow it to expand almost indefinitely, limited only by demand for the products, and market share.



The location of the currently planned pit to supply Stage 1 and Stage 2 expansions is coloured Dark Red (for Measured Resources) and green (for Indicated Resources). It shows the significant potential of the rest of the tenement package.

**FIGURE 5 TENEMENT LAYOUT SHOWING DRILL SPACING AND LOCATION OF PLANNED PIT (IN DARK RED AND GREEN)**



Source: WAK prospectus Snowden Report p28, reserve outline overlay from WAK DFS Part 3 CSA Report p23

### **Processing to produce K99 Product (the dry process)**

Ore mining is relatively simple and will be carried out by a contractor. The ore is free digging with no explosives required. The ore starts very close to surface and extends to a depth of 45m, below which it becomes granite so the pits are typically shallow with a very low waste to ore ratio.

The ore is dried in a gas fired kiln to reduce moisture from 12% to less than 1%. From the dryer the ore is fed to an attritioning and beneficiation circuit which removes quartz and sizes the product into various grades. The Kwinana demonstration plant processed 4462t of bulk sample over 18 months to around September 2020 to demonstrate the processing technology.

The Definitive Feasibility Study costs assume that WA Kaolin transports product to port and pays for shipping to its distributors' country, and the distributors cover the selling costs from that point.

Kaolin is recovered from kaolinised granite. The Wickepin granite Resource contains 50% kaolin on a dry basis. However, the ore mined is reported on a wet basis, including in WA Kaolin's case 12% moisture. The recovery from ore mined assumed in the WA Kaolin financial model is 37.5%. Peer recoveries to product are 40% for Suvo and 46% for Andromeda.

- Kaolin in granite ore is 50% on a dry basis (Reserve reporting) and reduces to 44% wet basis because of the presence of 12% moisture (ore production is reported in wet tonnes).
- Mining recovery at Wickepin is estimated at 98%.
- Metallurgical recovery at Wickepin is estimated at 87%.
- Overall recovery from wet ore is  $44\% \times 98\% \times 87\% = 37.5\%$ .
- Overall recovery from dry ore is  $50\% \times 98\% \times 87\% = 42.6\%$



FIGURE 6 THE DRY PROCERSS FOR MAKING K99 PRODUCT



Source: WAK prospectus 24 November 2020 p44

The wet process adds water to turn the feed into a slurry, and the kaolin is separated out, and the water removed using a thickener, filtration press and a gas-powered dryer. WA Kaolin's process avoids the thickener and filtration press stages. It also does not need a tailings dam.

## ***Kaolin Industry Fundamentals***

### ***Mineralogy***

**Kaolinite** is a clay mineral, with the chemical composition  $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ . It is a layered silicate mineral, with one tetrahedral sheet of silica ( $\text{SiO}_4$ ) linked through oxygen atoms to one octahedral sheet of alumina ( $\text{AlO}_6$ ) octahedra. Rocks that are rich in kaolinite are known as kaolin or china clay. Its key mechanical properties are very low shrinkage (little change in shape when heated or cooled) and low cation-exchange capacity (ie very stable chemically). Source: <https://en.wikipedia.org/wiki/Kaolinite>.

**Halloysite** is an aluminosilicate clay mineral with the empirical formula  $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ . Halloysite typically forms by hydrothermal alteration of alumino-silicate minerals. Halloysite is a rare form of kaolin where the mineral occurs in nanotubes, rather than the more typical flat sheets shown in Figure 7.

Source: <https://en.wikipedia.org/wiki/Halloysite>

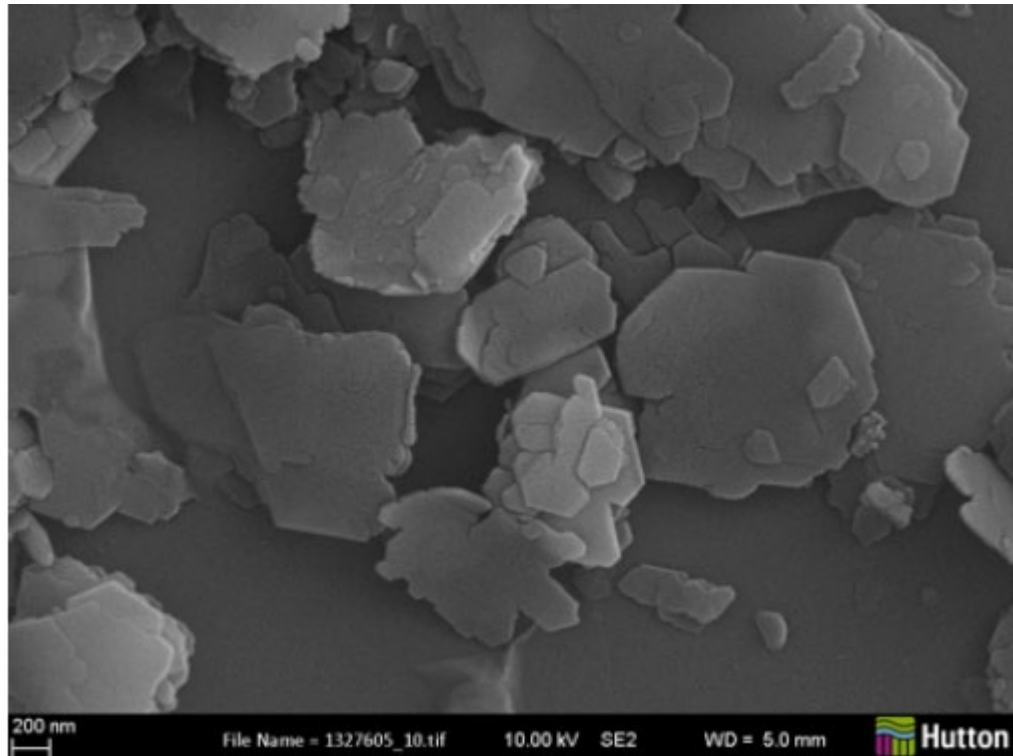
Andromeda claim a number of applications where halloysite could find premium markets, including very high quality fine porcelain, and as inert replacement of carbon nanotubes in hydrogen storage, water purification, carbon capture, and soil remediation.

**Alumina** (aluminium oxide) is a chemical compound of aluminium and oxygen with the chemical formula  $\text{Al}_2\text{O}_3$ . It is the most commonly occurring of several aluminium oxides. It occurs naturally in its crystalline polymorphic phase  $\alpha$ -  $\text{Al}_2\text{O}_3$  as the mineral corundum, varieties of which form the precious gemstones ruby and sapphire. Alumina is significant in its use to produce aluminium metal, as an abrasive owing to its hardness, and as a refractory material owing to its high melting point.

[https://en.wikipedia.org/wiki/Aluminium\\_oxide](https://en.wikipedia.org/wiki/Aluminium_oxide)

**High Purity Alumina (HPA)** is at least 99.9%  $\text{Al}_2\text{O}_3$ , and is a low volume but very fast growing niche market supplying technical solutions to the electronics and battery markets.

FIGURE 7 ELECTRON MICROSCOPE IMAGE OF KAOLIN CRYSTALS (NOTE 200 NANOMETRE SCALE LOWER LEFT)



Source: Suvo Strategic Scoping Study 27 May 2021. 200 nanometres = 0.0002 millimetres.

A key property supplied by kaolin is whiteness. Objects look white when they reflect the full spectrum of visible light, and one way for that to happen is if particles are smaller than the wavelength of the visible spectrum, which is 400-700 nanometres. In the above figure, particles sizes range from 800nm to below 400nm. While there are other issues, size is a big factor in whiteness, hence the emphasis on particle size in kaolin specifications (“Particle size distribution of mining materials on whiteness” by Mathur and Ajmer <https://www.worldscientific.com/doi/pdf/10.1142/S2010194513010180>.)

## Kaolin Market

### Supply and demand favour the suppliers

In any commodity market such as kaolin, the power of buyers is heavily influenced by demand growth rates, and the ability of suppliers to source resources. If the forecasts in Table 16 of over 3%pa annual growth are correct, then the buyers will generally be at a disadvantage. They will have to pay a price which includes a component to maintain continuing investment in new supply.

**Structure of demand: Ceramics and fibreglass are the growth sectors and China the growth region**

TABLE 16 DEMAND GROWTH BY PRODUCT CATEGORY

000 tonnes	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	CAGR '20-'25
Ceramics	11436	10492	9504	11484	11813	12198	12584	12942	6.4%
Paper	10547	10537	10491	10739	10980	11228	11482	11742	2.3%
Fibreglass	2374	2692	2620	2778	2991	3165	3352	3580	6.4%
Rubber & Plastic	2721	2735	2799	3242	3262	3024	3054	3113	2.2%
Coatings	2279	2291	2326	2630	2700	2619	2707	2817	3.9%
Other	3346	3447	3549	3711	3896	4076	4244	4429	4.5%
Total	32702	32194	31289	34584	35641	36310	37422	38623	4.3%
Change		-1.6%	-2.8%	10.5%	3.1%	1.9%	3.1%	3.2%	
2017 Forecast	31900	33200	34600	36100	37700	39400	41200	43100	

Source: TZMI per Andromeda DFS release 6 April 2022, 2017, forecast from WAK DFS Part 3 p16 (author: Grand View Research)



TABLE 17 DEMAND GROWTH BY REGION

000 tonnes	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	CAGR '20-'25
China	7438	7570	7884	8349	8816	9233	9659	10123	5.1%
Other Asia-Pacific	9550	9350	9103	10554	10629	10565	10703	11023	3.9%
Europe	8052	7799	7219	7954	8214	8370	8648	8787	4.0%
North America	4789	4671	4409	4785	4937	5032	5191	5327	3.9%
South America	1719	1681	1603	1760	1820	1857	1922	2005	4.6%
Middle East & Africa	1153	1124	1071	1184	1226	1254	1300	1358	4.9%
Total	32702	32194	31289	34584	35641	36310	37422	38623	4.3%

Source: TZMI per Andromeda DFS 6 April 2022

While these forecasts have China as the fastest growing region, the country's continuing asserting of unification with Taiwan, and the consequences for trading partners if that is attempted by force, is encouraging the start of a shift in global investment away from China into the rest of Asia, and if this emerging trend is sustained, the rest of Asia may accelerate while China slows.

**Supply structure: the top four companies account for 26% of supply and more of the top end**

The industry is dominated by a number of large suppliers that are integrated into downstream activities as well as being raw material suppliers. Imerys S.A. (France), BASF SE (Germany), Ashapura Group (India), SCR-Sibelco N.V. (Belgium), and Quarzwerke (Germany) account for over 26% of global production, and a much higher share of the higher priced applications.

There appears to be industry consolidation under way with private companies buying out the kaolin businesses of the industry majors. On 27 July 2021, Thiele Kaolin agreed to purchase some of Imerys' kaolin assets in North America. On 30 September 2022, BASF's Kaolin business was acquired by US based unlisted kaolin producer, KaMin LLC, which further consolidates the industry.

These companies are also the defacto price setters in the industry. As can be seen from the kaolin price history, their strategy is to maintain a stable price at a level that incentivises new production (see the long term price history in Figure 10).

**Kaolin's historical price stability under pressure from inflation**

However, the cost inflation in North America is driving multiple rounds of price increases. Given their increased influence, it is worth noting that KaMin and Thiele have announced a number of increases in the global price of their kaolin products, citing cost inflation as the driver.

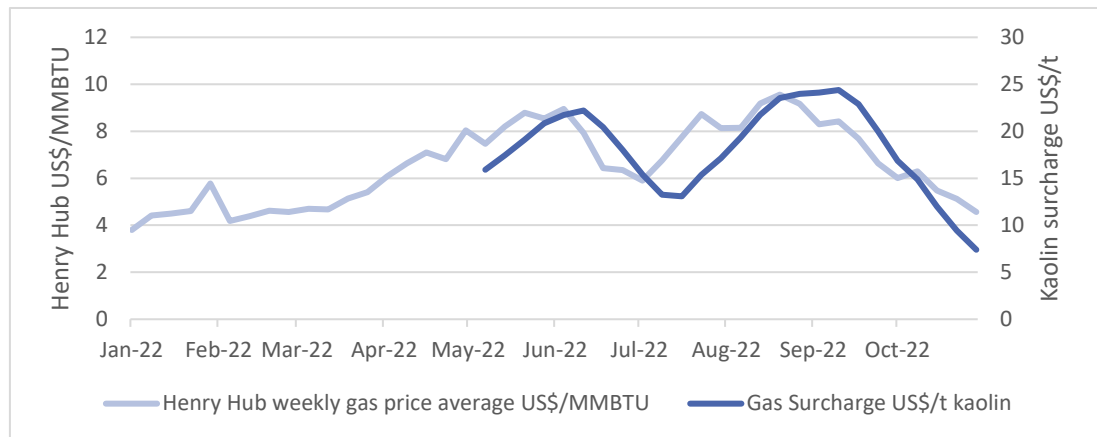
- 1 June 2021 Thiele announced an 8% increase
- 1 August 2021 KaMin announced a 10% increase
- 22 March 2022 KaMin announced an unspecified global price increase
- 6 May 2022 Thiele announced a 9% increase
- 9 May 2022 KaMin announced an energy surcharge when gas prices in the US rise above US\$4/MMBTU. For every US\$1/MMBTU of gas price increase, the surcharge adds US\$4.95/tonne for dried product and US\$11/tonne for calcined product.
- 22 July 2022 KaMin announced an unspecified global price increase
- 1 October 2022 Thiele announces a further unspecified increase

The KaMin gas surcharge has added between US\$15/t and US\$25/t since imposition, but with the recent decline in gas prices has fallen to US\$7/t. It is an example of the ability of kaolin producers to pass costs through to customers.





FIGURE 8 HENRY HUB GAS PRICE HISTORY AND THE ESTIMATED IMPACT ON KAOLIN PRICES OF KAMIN'S SURCHARGE



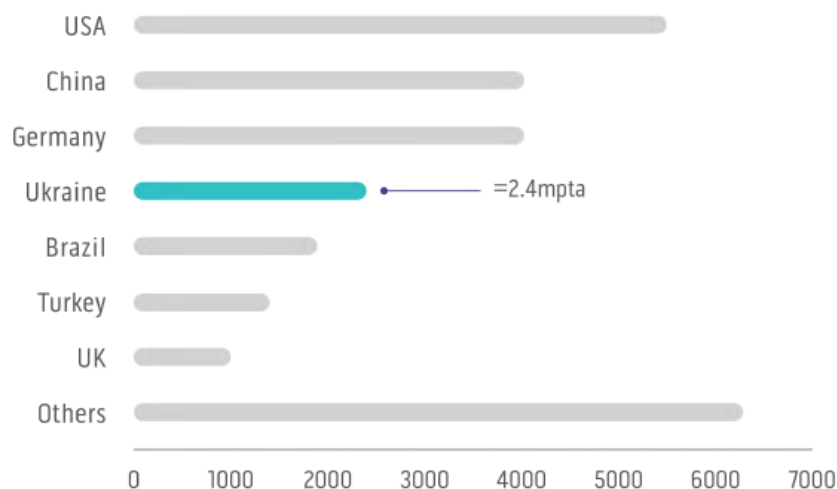
Source: Henry Hub from the St Louis Federal Reserve, Surcharge calculated by Breakaway

### Prices are also under pressure from the disruption of supplied from Ukraine

FIGURE 9 STRUCTURE OF GLOBAL KAOLIN SUPPLY

## GLOBAL SUPPLY

Est. 2019 global production = ~27mpta<sup>1</sup>



**84%**  
of processed kaolin is  
supplied by **10 countries**

**2.4mpta**  
of processed kaolin is  
supplied by **Ukraine**

Source: Suvo presentation 20 October 2022

In 2022, that price stability was tested when the Ukraine War erupted. Ukraine is around 9% of global of Kaolin (Figure 9), as it is in a number of commodities. While the war is continuing, commodity markets appear to have adjusted largely if not completely, and we are assuming close to normal kaolin markets going forward.

However, there is always a risk of further disruption, and the net effect is the create demand for alternative new suppliers, favouring emerging producers in countries like Australia.



Imerys is the largest supplier of high-quality kaolin but has a limited focus and presence in the Asia-Pacific kaolin market compared to other parts of the world. India's two largest producers, EICL Limited and Ashapura Group, have a strong presence in the region, along with a multitude of Chinese producers using domestic and imported sources. High quality kaolin is imported into Asia-Pacific from North America and Europe.

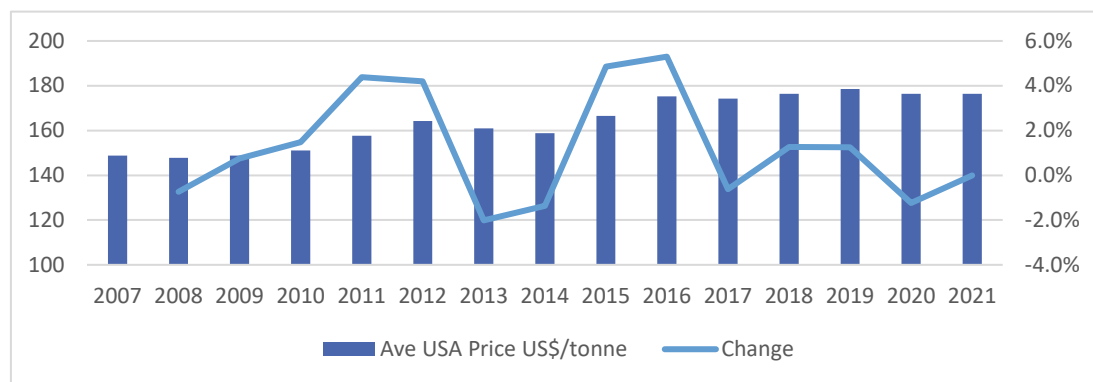
Other major suppliers include Lasselsberger Group (Hungary), and 20 Microns Limited (India).

High-quality kaolin is currently mined in countries including the United States, the United Kingdom, Germany, Ukraine, and the Czech Republic.

Individual customers for Kaolin are typically small and numerous, hence WA Kaolin generally deals with distributors. The consumers including distributors tend to be less aggregated than the raw materials suppliers, so suppliers are likely to have considerable bargaining power. The evidence for this is the generally small size of contracts being negotiated by WA Kaolin (ie 1,000-10,000tpa).

### Price dynamics: the major producers have maintained stable prices on a rising trend

FIGURE 10 WEIGHTED AVERAGE US EX WORKS KAOLIN PRICE (IE FOR EXPORT ADD FREIGHT TO PORT, SHIPPING COSTS)



Source: US Geological Survey, Clay Minerals 2022 update

The price series in the figure above is an Ex Works price, and excludes freight to port (US\$20-50/t and sea freight to Asia (US\$50/t), so the price that WA Kaolin is competing with would be around US\$200/t plus sea freight of US\$50/t. Sea freight from Australia to Asia is similar, so the FOB price WA Kaolin is competing with is likely to be close to US\$200/t FOB or around A\$308/t FOB.

The figure above does not include the volatility seen in 2022 discussed above. Over time, kaolin prices have risen broadly in line with inflation, with small price moves related to the business cycle. Relative to say energy or metal commodities, a 4% price boom followed by a 2% price slump is insignificant. 2020 and 2021 were COVID years, with unexpectedly soft demand. Even though China is still experiencing COVID related lockdowns in 2022, which are impacting demand, this year appears to be an up year for prices on the back of the Ukraine War and the cost inflation that was already emerging prior to the war starting.

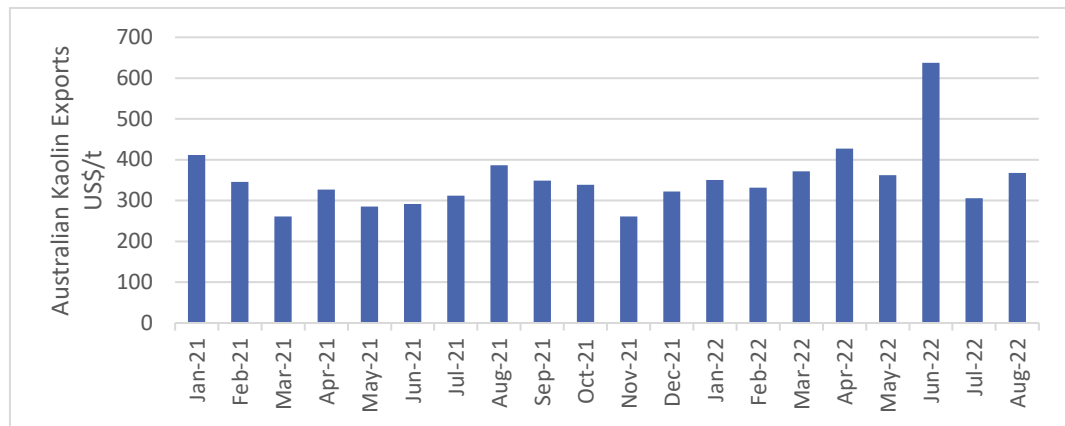
### Australian kaolin export price average for 2022 to August is up 20% on same period in 2021

A more recent picture of prices is the figure below showing monthly Australian kaolin export average prices. The average price for the first eight months of 2022 is up 20% on the previous corresponding period, and while the average is influenced by the spike in June 2022, that rise is consistent with the anecdotes of US price rises summarised on page 20.

The average for 2022 to August is US\$394/tonne, which is well above the US\$200/t we are assuming in our estimates for WA Kaolin. There is no detail on the specifications of these exports, so it is not possible to use these prices as a guide to WA Kaolin selling prices. However, we believe that comparing year to date to the previous period is likely to smooth out the quality issues, and the estimated price rise



FIGURE 11 AVERAGE PRICE OF MONTHLY AUSTRALIAN KAOLIN EXPORTS GENERALLY OVER US\$300/T FOB



Source: Comtrade

### Price dynamics in Asia

In the lower priced product range, and particularly in the Asia Pacific market that is WA Kaolin's target market initially, the region is a net importer, so the marginal price is the cost of imported product, which would typically come from the USA, which means Australian exporters will be generally competing with US exporters.

As a result, the volatility in container freight rates seen in the last year has been worn by the consumers not the producers.

### Products within the global kaolin market

TABLE 18 PROCESSING OF KAOLIN AND TARGET MARKETS BY PROCESS (AIR FLOAT = DRY PROCESS AS USED BY WA KAOLIN)

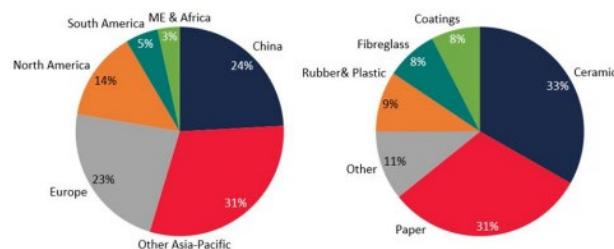
	Share of Demand	Use
<b>Water Washed Clay</b>	40%	Filler for rubber plastics inks and coatings
<b>Air Float Kaolin</b>	15%	Refractories, fibreglass, cement, catalysts, filler for rubber, ceramics, roofing, caulks, adhesives, sealants, paints, paper
<b>Calcined Kaolin</b>	20%	Refractories, permeable ceramics, wire and cable sheathing, printing paper
<b>Meta Kaolin, Other</b>	25%	Increasing chemical durability of concrete

Source: WAK prospectus 24 November 2020 pp51-2

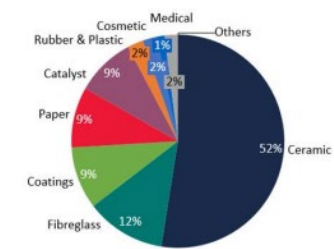
WA Kaolin has a number of products, some of which are shown in the table below. K99F is the fibreglass product. K99P is for paper applications. K99C-45 is for ceramics, and K99S is for general use.

FIGURE 12 BREAKDOWN IN KAOLIN DEMAND

Global kaolin demand by end use and region in 2021



Chinese kaolin demand by end use in 2021



Source: Andromeda presentation 30 June 2022

WA Kaolin's Wickepin project has successfully produced K99S product, which is the simplest specification, and is starting to produce the more complicated grades.

TABLE 19 WA KAOLIN PRODUCT SPECIFICATIONS VS ANDROMEDA AND OTHER EXISTING PRODUCTS

	WAK K99F	WAK K99P	WAK K99S	WAK K99C45	ADN PW90	Existing Product				
						China 1	China 2	Europe 1	Europe 2	Europe 3
<b>Brightness (ISO)</b>	>80	87	>80	>90	90	80	80	80	87	85
<b>Chemical Analysis</b>										
<b>SiO<sub>2</sub></b>	47.0%	47.5%	47.5%	47.0%	45.3%	49.3%	48.0%	52.0%	48.0%	48.0%
<b>Al<sub>2</sub>O<sub>3</sub></b>	39.0%	37.5%	37.5%	39.0%	38.0%	35.3%	36.0%	34.0%	37.0%	36.5%
<b>Fe<sub>2</sub>O<sub>3</sub></b>	0.20%	0.60%		0.20%	0.35%	0.30%	0.30%	0.43%	0.47%	0.68%
<b>TiO<sub>2</sub></b>	0.25%	0.50%		0.25%	0.03%	0.03%	0.02%	0.17%	0.01%	0.02%
<b>MgO</b>		0.20%			0.17%	0.27%	0.04%	0.26%	0.25%	0.30%
<b>Na<sub>2</sub>O</b>					0.38%	0.08%	0.24%	0.01%	0.15%	0.10%
<b>K<sub>2</sub>O</b>	0.30%	1.60%		0.25%	0.14%	2.36%	1.20%	0.30%	1.20%	1.65%
<b>Minerology</b>										
<b>Halloysite</b>					20.0%	30.0%			10.0%	
<b>Kaolinite</b>					80.0%	70.0%	90.0%	80.0%	67.0%	80.0%
<b>Moisture</b>	1.0%	1.0%	1.0%	1.0%						
<b>Particle Size</b>										
<b>&gt;45 micron</b>	1.0%	1.0%	1.0%	1.0%						
<b>&lt;2 micron</b>		55.0%		45.0%	90.0%	80.0%	80.0%	82.0%	85.0%	70.0%
<b>&lt;1 micron</b>					78.0%	50.0%	60.0%	50.0%	70.0%	60.0%

Sources: Andromeda PFS Table 6 p26, Suvo Presentation June 2020, <https://www.choko.asia/kaolin.html>

WA Kaolin has been working with a number of other distributors over the period the Kwinana processing plant has been operating. The Stage 1 plant is adding around 1.2% of supply to the addressable market through established distributor and customer relationships, and we see this risk as well managed.

TABLE 20 WA KAOLIN DISTRIBUTORS AND DIRECT CUSTOMERS AS AT NOVEMBER 2020

Country	Counterparty	Industry	Relationship
China & Taiwan	Dak Tai Trading Limited (DTT)	Fibreglass	Distributor
Taiwan	CHOKO Co Ltd	Ceramics	Distributor
Vietnam	Australian Ceri Pty Ltd	Ceramics	Customer
Japan	Yamaka Clay Material Corporation	Ceramics	Customer
China & Taiwan	CMP Tianjin Co Ltd	Coatings	Distributor
Australia	BGC Plasterboard	Building Products	Customer
Japan	KCM Corporation	Ceramics	Distributor

Source: WAK Prospectus 24 November 2020 pp45-46

### Kaolin as a driver of carbon reduction in the cement industry

A potentially large new demand for kaolin is as Metakaolin, a replacement or additive in cement. The modern world is made of steel and concrete, and 10-20% of concrete is cement, which is a major contributor to carbon emissions by virtue of the high temperatures required in its manufacture.

One of the sustainable aspects of Metakaolin is its manufacturing temperature. Compared to cement production of about 1500°C, Metakaolin is burned at lower temperature at about 700–900°C, and therefore has a substantially lower carbon footprint. The principal cement ingredient that the Metakaolin is replacing is lime.

The commercial issue will be that lime is plentiful and generally located close to centres of construction (ie cities). If lime continues to be available to the cement industry at around \$50/t, Kaolin costing A\$200-400/t will have a tough time competing as wholesale carbon reduction driven replacement.



However, there are likely to be niche applications. Curtin University research into the use of Metakaolin in concrete reported the following, as published by Suvo in a release dated 15 September 2022:

*“Cement production is the world’s single biggest industrial cause of carbon pollution and is responsible for 8% of global emissions. Accordingly, the use of MK to produce green cement could have significant global benefits.*

*“The study findings also note concrete incorporating Metakaolin can provide up to a 40% improvement in mechanical properties, such as compressive strength, flexural strength, and tensile strength. This can help increase the lifespan of concrete structures by up to 50%, leading to another potential 14% reduction in CO2 emissions, as well as a reduction in cement, water, and aggregate demand.*

*“Researchers also found Metakaolin concrete possesses better durability characteristics, significantly extending its application to marine structures. This characteristic of concrete incorporating MK can greatly elongate the life span of concrete structures under harsh conditions.*

*“Using assumptions from previous studies, Curtin University researchers note Metakaolin can be used in a concrete mixture between 10 - 40% of the mass of cement while potentially improving the mechanical properties of concrete.*

*“Based on this, the study highlights a potential demand range of 0.72 - 2.88 million tonnes per annum of Metakaolin from the Australian construction industry alone.”*

Demand from this application is yet to impact the demand estimates materially but may gather impetus as carbon reduction targets become more serious objectives.

## **Capital and Debt Structure**

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### **Capital Structure – Summary of most interesting features**

There is a tight share register with the top 20 shareholders owning 68% of the company and three shareholders owning 41%. 36% of the ordinary shares are restricted until at least the 26 November 2022.

There is a relatively large block of options with exercise prices of A\$0.25/sh and A\$0.35/sh which if exercised would raise an additional A\$45.4M cash at the cost of diluting existing shareholders to 67% of the company.

The Performance Shares have very specific targets including revenue and EBITDA targets which we believe are likely to be achieved, and the dilution is reflected in forecast capital issuance. If these targets are achieved, we would expect the share price response to be positive, despite the dilution.

A significant part of the debt is aligned with shareholders and the Board specifically has the discretion to defer scheduled repayments if there is inadequate cash flow, reducing the risk to shareholders of a default.

### **Debt**

The debt in the balance sheet differs from the actual debt because the company’s auditors have required that the debt is marked to market, to reflect the fact that most of it is loaned at zero interest. The table below shows both the face value (ie what has to be repaid) and the value in the balance sheet.

We have included the unwinding of the discount in our earnings estimates.

TABLE 21 LENDERS INTEREST RATES AND REPAYMENT SCHEDULE – MAJOR REPAYMENT IN SEPTEMBER 2023

Payment Date						
A\$M	Principal A\$M	20-Aug- 22	14-Feb- 23	20-Sep- 23	20-Sep- 24	14-Feb- 25
Loans at face value from 2022 Accounts Note 11						
WAMCO Industries Limited	1.150	0.311		0.839		
Scientific Management Assoc (Operations) P/L	8.000			8.000		
Scientific Management Associated (Victoria) P/L	12.040			4.635	7.405	
Boneyard	5.052		0.052			5.000
Total At 30 June 2022	26.242	0.311	0.052	13.474	7.405	5.000
From June 2022 Accounts		Current	Non- Current	Total		
Discounted loan value in balance sheet						
Loans from related parties	1.060	0.311	0.749			
Loans from other	23.271	0.286	22.985			
Total At 30 June 2022	24.331	0.597	23.734			

Source: WAK 2022 annual report

The debt is unsecured. In respect of the WAMCO and Scientific Management dept, the Prospectus (p201) makes specific mention that it is not a default if the directors decide not to pay a relevant instalment due to lack of free cash flow. This reinforces the view that the terms of this related party debt are favourable to the company and the interests of the debt providers are largely aligned with those of the shareholders.

The debt attracting interest is the A\$8.0M from Scientific Management and the A\$5M from Boneyard. The balance is at zero interest.

### Equity Structure: Options and performance shares are 36% of diluted capital

TABLE 22 SHARE STRUCTURE

	Exercise Price A\$/sh	Shares	Performance Shares	Options	Total	Raise A\$M
Ordinary Shares		210.6			210.6	
Restricted Ordinary		122.4			122.4	
					0.0	
Performance Shares			27.5		27.5	
					0.0	
<b>Options (all restricted)</b>					0.0	
Expiring 20 Nov 2023	0.25			7.6	7.6	1.89
Expiring 20 Nov 2024	0.35			5.0	5.0	1.75
Expiring 20 Nov 2025	0.35			28.5	28.5	9.98
<b>Options (unrestricted)</b>						0.00
Expiring 20 Nov 2023	0.25			124.2	124.2	31.04
Expiring 20 Nov 2025	0.35			2.0	2.0	0.70
Total		333.0	27.5	167.2	527.7	45.4

Source: WAK release 8 March 2022

The Restricted shares become unrestricted on 26 November 2022.

Note the cash to be raised if all the options are exercised is A\$45.4M, with A\$32.9M if the share price exceeds A\$0.25/sh and A\$12.4M if the share price exceeds A\$0.35/sh.

The existing ordinary shares amount to 63.1% of the fully diluted equity.



TABLE 23 TIMING AND TRIGGER EVENTS FOR THE AWARD OF PERFORMANCE OPTIONS

Performance Shares M	30-Jun-22	30-Sep-22	30-Jun-23	30-Jun-24	30-Jun-25
Wickepin built for less than A\$18M	5.5				
Production exceeds 20tph for 5 days		5.5			
Achieved revenue target below			2.75	2.75	2.75
Achieved EBITDA target below			2.75	2.75	2.75
Total	5.5	5.5	5.5	5.5	5.5
Revenue Target A\$M			31.7	44.8	80.7
EBITDA Target A\$M			5.7	10.3	21.4
Implied Opex			26.0	34.5	59.3
Implied Margin			18.0%	23.0%	26.5%

Source: WAK 2022 annual report

The award of performance shares provides some interesting information on revenue and earnings and if these targets were achieved, we believe the market reaction to the revenue and EBITDA numbers would be positive for the share price relative to the current level of A\$0.19/sh.

Our forecasts are slightly above those targets.

TABLE 24 TOP 26 SHAREHOLDERS ACCOUNT FOR 68.23% OF THE REGISTER

Holder Name	Shares	Shares	%
Silver Tropic P/L (WAMCO)		49,883,574	14.98%
Scientific Industries Victoria (WAMCO)		48,844,333	14.67%
Hall Park Total		38,764,625	11.64%
Kaolin CT Ltd		11,049,732	3.32%
Century Horse Ltd		9,375,000	2.82%
Mr Han Swee Tan		9,228,378	2.77%
CAJWM P/L		7,000,000	2.10%
Boneyard Investments Ltd		7,000,000	2.10%
Mr AB Sorensen (WAMCO)	4,156,964		
A Sorensen Holdings	2,197,259		
A Sorensen Total		6,354,223	1.91%
Stephen Rice		5,366,452	1.61%
J & C Woulfe		5,366,452	1.61%
P Lowry & K Watson		5,366,452	1.61%
Citicorp Noms		4,423,225	1.33%
Ms Lay Hoon Lee		3,911,265	1.17%
Mr Beng Gim Tan		3,500,000	1.05%
Luo & Liu Family		2,082,000	0.63%
Mr K Rathore		2,050,371	0.62%
Exhibitions Plus P/L		2,034,290	0.61%
G&N Lord Super		1,916,667	0.58%
Jasper Hill Resources P/L		1,896,737	0.57%
K & C Biddick (Conquest Sports)		1,791,667	0.54%
Total		227,205,443	68.23%
Total issued capital - selected security class(es)		332,991,470	100.00%

Source: WAK 2022 annual report



## ***Board and Management***

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### ***Dr John White Non-Executive Chairman***

John has been a director and/or CEO of several publicly listed and private Australian companies. John is formerly the Chairman of the Federal Government's Uranium Industry Framework Council, a member of the Federal Government's Defence Procurement Board and Director of the Defence SA Advisory Board.

John had extensive involvement with Woodside's North West Shelf Offshore Gas and LNG Development from 1978 to 1984, and then participated in the RAN Collins Class Submarine Project tender as Project Director for the Australian-German owned AMEC proposal.

John was CEO of Transfield Defence Systems Pty Ltd from 1988 to 1996 and then Global Chief Executive of the recycling/packaging group, Visy Industries. John is currently Chairman of Regenerative Australian Farmers Pty Ltd and Birdon Ltd.

### ***Alf Baker Executive Director***

Alf has an engineering background with more than 40 years' experience in process technology and is co-founder of WA Kaolin. He is an experienced and successful businessman, authoring several patents and designs during his extensive career.

Since 1996, Alf has founded and directed a number of companies, including:

- EMC Pacific Aust P/L (EMCPA), Australia's only manufacturer of power distribution insulators, commencing manufacture of its products in USA, from April 2020.
- Pacific Polymers, a mineral treatment plant operating in Dandenong, Victoria.

Alf was Managing Director of the highly successful PQ Australia (PQA) from 1976 to 1996, which he co-founded with his brother. PQA produces the inorganic chemical, Sodium Silicate, in both glass and liquid form, and the patented valuable downstream product 'Q-Cel' hollow microspheres.

In all cases, innovation, hands on determination and training of younger executives have led to success and low-cost producer status.

### ***Andrew Sorensen Chief Executive Officer***

Andrew joined WA Kaolin in 2006 and has more than 30 years' experience in operations management across a broad range of industries. He has a Bachelor's degree in Applied Science (Information Management) and a Master's of Business Administration.

Prior to joining WA Kaolin Andrew held various senior leadership positions including General Manager CMTP Pty Ltd Derrimut, Vice President / General Manager (Asia Pacific) for Potters Industries Inc. and Manufacturing Manager for PQ Australia Pty Ltd.

Andrew is responsible for considering and deciding on key strategic, business and operational matters. He oversees the operational team, guiding continuous improvement of the WA Kaolin project. He is also responsible for driving standards in health, safety, security, environment, IT and procurement.

### ***Cathy Moises Non-Executive Director***

Cathy has worked for a number of the most prominent Stock broking firms within Australia including Merrill Lynch, Citigroup, Evans and Partners (as a partner) and most recently worked as Head of Research for Patersons Securities.

Cathy has a Bachelor of Science (Hons) Geology in addition to a Securities Institute of Australia Diploma of Finance and Investment and has over 30 years' experience working within the resources



industry primarily as a financial analyst. She has extensive capital markets, company management, financial analysis and Institutional Investor engagement experience.

Cathy currently serves as Non-Executive Chair of PacGold Limited and Non-Executive Director for Arafura Resources Limited, Australian Potash Limited and Podium Minerals Limited.

#### ***Patrick Walta – Non-Executive Director***

The appointment was effective from the 1st October 2022. Patrick is a qualified metallurgist, mineral economist and board executive and his appointment significantly strengthens WAK's mining operations experience. Patrick was previously Managing Director of New Century Resources Limited (ASX: NCZ), which he founded in 2017 following the successful negotiation and acquisition of the Century Zinc Mine in Queensland. Under Patrick's leadership, the Century Zinc Mine was successfully restarted, commissioned, and ramped up to be the 13th largest zinc producer worldwide. These efforts led to the Century Mine being a finalist for the Mine of the Year Award (Australian Mining Prospect Awards) in 2021.

Patrick has also had an impressive career within the resources industry including previous experience at Rio Tinto, Citic Pacific Mining, Cradle Resources, Carbine Resources, Primary Gold and Clean TeQ. Throughout his career Patrick has received many industry accolades including the MNN Emerging Leader of the Year Award in 2018 and the Young Achiever of the Year award in 2015 at the Australian Mining Prospect Awards.

Patrick holds degrees in Chemical Engineering and Science, from Melbourne University and has completed postgraduate studies including an MBA, Master of Science (Mineral Economics) and a Diploma of Project Management and is a graduate of the AICD's Company Directors Course.

#### ***Michael Kenyon Chief Financial Officer / Company Secretary***

Michael has held senior roles with both private and ASX-listed corporations over the past 23 years. He holds a Bachelor of Business degree from Edith Cowan University, is a Chartered Accountant and a graduate member of the Australian Institute of Company Directors.

He commenced his finance career with roles at then 'Big 6' professional services firms, Ernst & Whinney and Price Waterhouse before joining diversified industrial company, Vysarn Pty Ltd in 1997 as Chief Financial Officer.

Since that time, Michael has held CFO roles with ASX-listed Forge Group Ltd, Matrix Composites and Engineering Ltd and Pacific Energy Ltd and is currently CFO for Resource Development Group Ltd. He is also a company secretary of a small ASX-listed company and deputy chairman of a leading Catholic aged care, family, health, disability and community services provider in Perth, Western Australia.



### Analyst Verification

I, **Michael Harrowell**, as the Research Analyst, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

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Breakaway Research Pty Ltd (AFSL 503622) and its associates, or consultants may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of **WA Kaolin Limited** and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

We acknowledge that Senior Resource Analyst, **Michael Harrowell**, holds no shares in **WA Kaolin Limited**.

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