

# **Nickel Mines (NIC)**

Rating: Buy | Risk: High | Price Target: \$1.28

# A\$364m equity raise to fund the IWIP investment

Key Information	
Current Price (\$ps)	1.05
12m Target Price (\$ps)	1.28
52 Week Range (\$ps)	0.31 - 1.09
Target Price Upside (%)	22.2%
TSR (%)	24.8%
Reporting Currency	USD
Market Cap (\$m)	2,224
Sector	Materials
Avg Daily Volume (m)	7.8
ASX 200 Weight (%)	0.12%

#### **Fundamentals**

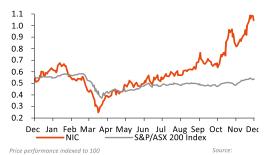
YE 31 Dec (USD)	FY19A	FY20E	FY21E	FY22E
Sales (\$m)	236	531	674	955
NPAT (\$m)	57	105	207	271
EPS (cps)	3.5	5.0	8.2	10.8
EPS Growth (%)	(42.3%)	41.8%	64.0%	30.7%
DPS (cps) (AUD)	0.0	2.9	5.4	10.9
Franking (%)	0%	0%	0%	0%

#### Ratios

YE 31 Dec	FY19A	FY20E	FY21E	FY22E
P/E (x)	13.0	15.3	9.3	7.1
EV/EBITDA (x)	16.4	8.9	5.2	3.7
Div Yield (%)	0.0%	2.6%	5.2%	10.4%
Payout Ratio (%)	0.0%	39.8%	48.5%	74.3%

#### **Price Performance**

YE 31 Dec	1 Mth	2 Mth	3 Mth	1 Yr
Relative (%)	11.5%	45.7%	34.5%	76.7%
Absolute (%)	22.2%	59.5%	43.2%	72.7%
Benchmark (%)	10.7%	13.8%	8.7%	(4.0%)



#### **Major Shareholders**

Shanghai Decent (Tsingshan)	18.6%
PT Karunia Bara Perkasa	16.1%
BlackRock Investment Management (UK) Ltd	6.5%
Norm Seckold	5.8%
Shanghai Wanlu	5.7%

#### Andrew Hines | Head of Research

+61 3 9268 1178

andrew.hines@shawandpartners.com.au

### Michael Clark | Analyst

+61 3 9268 1148

michael.clark@shawandpartners.com.au

#### Even

Nickel Mines has announced an A\$364m equity raise to fund the previously announced investment of 70% of PT Angel Nickel Industry (ANI) for US\$490m. We are surprised at the size and the timing of the equity raise. Nickel Mines is taking a very conservative approach to managing its balance sheet. This is likely to mean that Nickel Mines remains in an aggressive growth phase, which is not a bad thing.

This investment in ANI will increase Nickel Mines attributable nickel production from ~33ktpa to ~58ktpa – a 75% increase in production for an outlay of just 42% of Nickel Mines' market capitalization at the time of the announcement.

## **Highlights**

- The equity raise is via an accelerated pro-rata non-renounceable entitlement offer at a ratio of 2 for 11 at A\$0.94 per share. Approximately 387m new shares are being issued, representing 18.2% of Nickel Mines' existing shares on issue.
- Our valuation of Nickel Mines drops from A\$1.33ps to A\$1.28ps with the additional share count partially offset by an additional cash injection of A\$361m. Our EPS forecasts drop by around 13%pa due to the higher share count, partially offset by lower interest expenses. We have not changed any operating forecasts.
- Nickel Mines currently has an 80% economic interest in two Rotary Kiln Electric Furnace (RKEF) projects in the Indonesia Morowali Industrial Park (IMIP). The Chinese steel company Tsingshan holds the other 20%. The Hengjaya project started in early-2019 and Ranger in mid-2019. Both projects have now reached steady state operation and are each producing ~21ktpa nickel (100% basis) at a cost of ~US\$7,500/t. Nickel Mines share totals 33-34ktpa which makes the company the largest pure play nickel exposure on the ASX.
- Earlier this year the company exercised its option to increase its stake in the two RKEFs from 60% to 80% and fully funded this via an equity raise of A\$231m.
- ANI is building four nickel rotary kiln electric furnace (RKEF) projects and a 380MW power station within the Indonesia Weda Bay Industrial Park (IWIP). Each RKEF will produce 9ktpa of nickel (in nickel pig iron) and so Nickel Mines' share of production will be 25.2ktpa at nameplate capacity. We note that the existing Ranger and Hengjaya RKEFs are running at 20-30% above nameplate capacity.
- The facilities are expected to be commissioned in Q3 2022.
- The US\$490m payment will be made in two stages; US\$210m in 1Q 2021 and US\$280m in Q4 2021.
- At the time the ANI investment was announced we commented that it could have been
  funded from internal cash flow and debt with no need for equity. Cash flow is strong so
  this debt could be paid down within a year. The company's decision to raise A\$364m in
  equity is a very conservative approach and suggests that the company wants to maintain
  a strong balance sheet to fund further investment opportunities in either IMIP or IWIP.
- Investor concerns about the ability to repatriate funds from Indonesia were allayed in 1H20 – Nickel Mines received cash payments of US\$25m from Hengjaya and US\$11m from Ranger.

### Recommendation

We retain our Buy recommendation but reduce our price target to A\$1.28ps. Nickel Mines is the largest pure exposure to nickel on the ASX and in our view the cheapest – trading at just 7.1x 2021 earnings – and with a clear growth path ahead. Nickel Mines is operating in Indonesia with strong support from the Indonesian government and with a Chinese partner which is also a major shareholder in Nickel Mines.



Nickel Mines Materials Materials

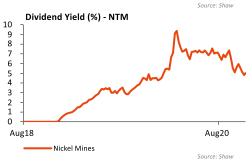
FactSet: NIC-AU / Bloomberg: NIC AU

Key Items	Data
Recommendation	BUY
Risk	HIGH
Price (\$ps)	1.05
Target Price (\$ps)	1.28
52 Week Range (\$ps)	0.31 - 1.09
Shares on Issue (m)	2,128
Market Cap (\$m)	2,224
Enterprise Value (\$m)	2,158
TSR (%)	24.8%

**Company Description** 

Nickel Mines Ltd. is a nickel producer with assets in Indonesia and operates in partnership with Tsingshan, the world's largest stainless steel producer. Nickel Mines produces nickel ore from the Hengjaya Mine which supplies feedstock to the Indonesia Morowali Industrial Park (IMIP). The company's main asset is an 80% stake in the Hengjaya and Ranger rotary kiln electric furnaces (RKEF) located in IMIP. The company was founded on September 12, 2007 and is headquartered in Sydney, Australia.





Net Debt / EBITDA (x)

Financial Year End: 31 December					
Investment Summary (USD)	FY19A	FY19A	FY20E	FY21E	FY22E
EPS (Reported) (cps)	6.1	3.5	5.0	8.2	10.8
EPS (Underlying) (cps)	6.1	3.5	5.0	8.2	10.8
EPS (Underlying) Growth (%)	n/a	(42.3%)	41.8%	64.0%	30.7%
PE (Underlying) (x)	4.7	13.0	15.3	9.3	7.1
EV / EBIT (x)	116.8	19.7	10.7	5.8	4.0
EV / EBITDA (x)	77.8	16.4	8.9	5.2	3.7
DPS (cps) (AUD)	0.0	0.0	2.9	5.4	10.9
Dividend Yield (%)	0.0%	0.0%	2.6%	5.2%	10.4%
Franking (%)	0%	0%	0%	0%	0%
Payout Ratio (%)	0.0%	0.0%	39.8%	48.5%	74.3%
Profit and Loss (USD) (m)	FY19A	FY19A	FY20E	FY21E	FY22E
Sales	65	236	531	674	955
Sales Growth (%)	n/a	263.5%	124.8%	27.1%	41.6%
Other Operating Income	3	1	1	1	1
EBITDA	20	97	178	303	428
EBITDA Margin (%)	31.5%	41.2%	33.6%	45.0%	44.8%
Depreciation & Amortisation	(7)	(16)	(30)	(30)	(30)
EBIT	14	81	148	273	398
EBIT Margin (%)	21.0%	34.2%	28.0%	40.5%	41.6%
Net Interest	58	11	(9)	(8)	(6)
Pretax Profit	72	91	140	265	392
Minorities	6	35	35	58	82
NPAT Underlying	66	57	105	207	271
Significant Items	0	0	0	0	0
NPAT Reported	66	57	105	207	271
Cashflow (USD) (m)	FY19A	FY19A	FY20E	FY21E	FY22E
EBIT	14	81	148	273	398
Payments to Suppliers	(28)	(170)	(353)	(372)	(528)
Receipts from Customers	33	213	532	675	956
Tax Paid	(1)	(5)	0	0	0
Net Interest	0	0	0	4	6
Depreciation & Amortisation	0	0	0	0	0
Other	0	0	(31)	13	(47)
Operating Cashflow	4	38	148	320	386
Capex	(20)	(30)	(13)	(3)	(3)
Acquisitions and Investments	(120)	(1)	(180)	(460)	0
Disposal of Fixed Assets/Investments	10	7	0	0	0
Other	(11)	0	0	0	0
Investing Cashflow	(141)	(24)	(193)	(463)	(3)
Equity Raised / Bought Back	173	(0)	409	0	0
Dividends Paid	0	0	(21)	(50)	(151)
Change in Debt	(2)	(30)	0	100	(100)
Other	15	17	(9)	(12)	(12)
Financing Cashflow	186	(13)	379	38	(263)
Exchange Rate Effect	(1)	(0)	0	0	0
Net Change in Cash	48	1	334	(105)	120
Balance Sheet (USD) (m)	FY19A	FY19A	FY20E	FY21E	FY22E
Cash	49	50	384	279	399
Accounts Receivable	44	97	138	129	183
Inventory	9	56	126	129	183
Other Current Assets	7	1	1	1	1
PPE	340	629	762	1,195	1,168
Total Assets	532	897	1,506	1,828	2,029
Accounts Payable	42	52	133	140	200
Short Term Debt	4	4	4	4	0
Long Term Debt	0	61	61	161	65
Income Taxes Payable	0	1	1	1	1
Other	30	57	57	58	97
Total Liabilities	77	175	256	364	363
Total Shareholder Equity	455	722	1,250	1,464	1,666
Ratios	FY19A	FY19A	FY20E	FY21E	FY22E
ROE (%)	n/a	15.3%	15.6%	20.8%	23.8%
Gearing (%)	(16.8%)	3.4%	(53.0%)	(11.9%)	(38.8%)

(2.2)

(1.8)

(0.4)

(8.0)



#### **Acquiring more RKEFs in Indonesia**

We have included the new RKEF units in our Nickel Mines financial model with the following key assumptions;

- Acquisition price of US\$490m paid in two installments in CY21.
- First production in July 2023.
- Production in line with nameplate capacity of 36ktpa nickel (in NPI). We note this
  is conservative given the performance of the Ranger and Hengjaya projects which
  are operating 20-30% above nameplate capacity.
- Operating costs in line with the IMIP RKEFs at US\$7,750/t (real \$2020).
- Nickel prices strengthening to ~US\$7.50/lb in 2021.

On a 100% basis, the four new RKEFs will generate EBITDA of US\$240-250m at a US\$7.50/lb nickel price. In our model we assume that Nickel Mines will consolidate the operations and allow for a 30% minority interest.

We model a DCF valuation of US\$472m which equates to A\$0.27ps.

We note that an independent experts report has valued Nickel Mines 70% share of IWIP RKEFs at US\$1.0-1.1b, substantially ahead of our valuation due to higher nickel price forecasts.

Nickel Mines is funding the acquisition via a A\$364m accelerated pro-rata non-renounceable entitlement offer at a ratio of 2 for 11 at A\$0.94 per share. Approximately 387m new shares are being issued, representing 18.2% of Nickel Mines' existing shares on issue.

Figure 1: IWIP financials (100%)

IWIP RKEF operations (US\$m, 100%)	CY19	2020f	2021f	2022f	2023f	2024f	2025f	2026f	2027f	2028f	2029f	2030f
NPI Produced (kt)	0.0	0.0	0.0	130	261	261	261	261	261	261	261	261
Total contained nickel (kt)	0.0	0.0	0.0	18.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Revenue	0	0	0	273	540	553	555	536	548	560	573	586
Expenses	0	0	0	146	298	305	312	319	326	333	341	349
EBITDA	0	0	0	127	242	248	243	217	222	227	232	237
Nickel (USc/Ib)	716	607	757	765	756	774	777	750	767	785	802	820
AUD/USD	0.69	0.69	0.72	0.74	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Revenue (US\$/t)	0	0	0	15,179	15,007	15,348	15,409	14,890	15,225	15,568	15,918	16,276
Expenses (US\$/t)	0	0	0	8,103	8,285	8,471	8,662	8,857	9,056	9,260	9,468	9,681
EBITDA (US\$/t)	0	0	0	7,076	6,722	6,876	6,747	6,033	6,169	6,308	6,450	6,595

Source: Shaw and Partners analysis.

Figure 2: Location of IMIP and IWIP in Indonesia



Figure 3: Nickel Mines Valuation

Nickel Mines Valuation	US\$m	A\$m	A\$ps
Hengjaya Mine	17	24	0.01
Hengjaya RKEF	744	1,063	0.42
Ranger RKEF	743	1,062	0.42
ANI RKEF	472	674	0.27
Corporate costs	-50	-71	-0.03
Net cash	323	462	0.18
Total Valuation	2,249	3,213	1.28

Source: Nickel Mines ASX release

Source: Shaw and Partners analysis



#### **Nickel Mines overview**

Nickel Mines has 80% economic interests in the Hengjaya Nickel and Ranger Nickel projects, both of which operate Rotary Kiln Electric Furnace (RKEF) plants producing NPI within the Indonesia Morowali Industrial Park (IMIP) in Sulawesi. Nickel Mines also holds an 80% economic interest in the nearby Hengjaya Nickel Mine.

The company listed on the ASX via an initial public offer (IPO) in August 2018 raising A\$200m at A\$0.35ps and valuing the company at A\$463m.

Nickel Mines started in 2009 as an explorer, developer and producer of DSO laterite nickel ore from the Hengjaya nickel mine to supply nickel pig iron producers in China. However, in 2014 the Indonesian government implemented a ban on unprocessed minerals and the mine was put on care and maintenance.

Fortunately for Nickel Mines, Tsingshan, the world's largest stainless steel producer, had moved ahead of the Indonesian export bans and begun construction of nickel pig iron (NPI) and steel making facilities at IMIP. This created a market for the Hengjaya mine, and Nickel Mines restarted operations in 2015.

The relationship between Tsingshan and Nickel Mines developed from being a raw material supplier to becoming partners in building RKEF capacity in the IMIP. Nickel Mines changed from being a relatively low value nickel miner to a higher value industrial processor of NPI. For Tsingshan the benefit was partnering with an Australian listed entity in which Tsingshan made a strategic investment and now owns 18.6%.

First production from the Hengjaya RKEF was on 31<sup>st</sup> January 2019 and from the Ranger RKEF on 31<sup>st</sup> May 2019. Both projects have now reached steady state operations and are producing above name-plate capacity at around 21kt of nickel per annum (100% basis). The cheap source of nickel ore and cheap power means that the nickel is being produced at a highly competitive cost of around US\$7,750/t. The operations are strongly cash flow positive even at current low nickel prices of around US\$13,000/t.

Nickel Mines recently exercised an option to acquire an additional 20% interest in the Hengjaya and Ranger RKEF projects for US\$120m (plus retained earnings). The acquisition was funded by a US\$150m (A\$231m) equity raise at A\$0.50ps.

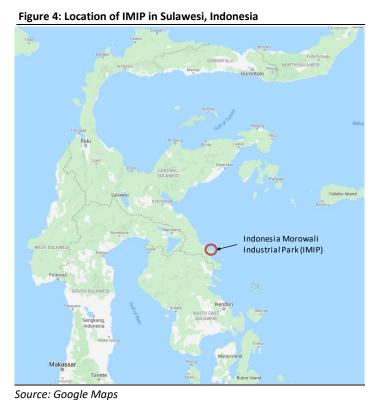


Figure 5: Hengjaya mine located 12km from IMIP

Hengjaya Mine

Source: Google Maps



### Tsingshan and the Indonesia Morowali Industrial Park (IMIP)

Tsingshan is the world's largest stainless steel producer. In 2019 Tsingshan produced approximately 10.6Mt of stainless steel out of a global market of 52.7Mt.

Tsingshan pioneered the large-scale use of nickel pig-iron, a semi-refined product that's a low-cost alternative to pure nickel, to make stainless steel. The major innovation was the Rotary Kiln Electric Furnace (RKEF) process which allows ore to be processed, smelted and directed into stainless steel furnaces in a continuous hot flow.

Tsingshan established a clear first mover advantage over its domestic and global peers in the stainless steel and nickel industry through its commitment to its investment as a majority owner of the IMIP.

The origin of the Indonesian unprocessed mineral export ban was actually a change made by the Indonesian Government in 2009 to focus on downstream processing. Tsingshan was early to recognise the opportunity, and with the blessing of the Chinese government made a commitment to establish the IMIP in 2013. In October 2013, China's President Xi and then Indonesian President Yudhoyono witnessed the signing of the Cooperation and Financing Agreement for the development of the IMIP.

Tsingshan's model is to partner with other companies to build, own and operate the IMIP infrastructure and one of those partnerships is with Nickel Mines.

The IMIP currently comprises:

- 3.0Mt pa stainless steel capacity,
- 30 operating RKEF lines,
- 0.5Mt carbon steel capacity,
- 0.6Mt pa high carbon ferrochrome,
- 2.9GW coal-fired power plant,
- Lime plant, coke plant, acid plant,
- Port facilities,
- Executive guest quarters and a 5-star hotel.

Figure 6: Indonesia Morowali Industrial Park (IMIP)



Source: Nickel Mines presentation.



Production of stainless steel at the IMIP is highly competitive due to three major factors;

- Cheap nickel ore. The ability to source higher grade (>1.8% nickel grade) nickel
  ore which is restricted from export from Indonesia as a result of the Indonesian
  Government's ban on the exportation of unprocessed nickel ore under a grade of
  4% nickel.
- Cheap power. The generation of competitive electricity costs by the IMIP's purpose-built 2.9GW power plant which is powered by domestically sourced thermal coal. Power costs are understood to be around US 5-6c/kWh.
- Vertical integration. The vertically integrated nature of operations within the IMIP to produce a stainless steel end product, utilising the key raw material inputs, including nickel ore and power. This provides a significant advantage as molten pig iron can be directly charged to the stainless steel plant.

In the Nickel Mines prospectus, the company was estimating a cost of around US\$8,300/t. However, now that the operations have reached steady state the costs are  $^{8\%}$  lower than expected at around US\$7,750/t.

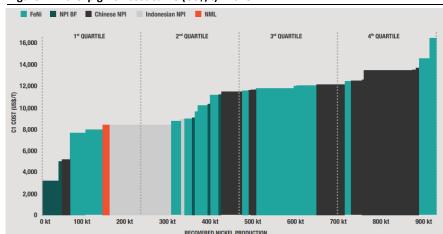


Figure 7: Nickel pig iron cost curve (US\$/t) - 2018

Source: Nickel Mines prospectus, Wood Mackenzie

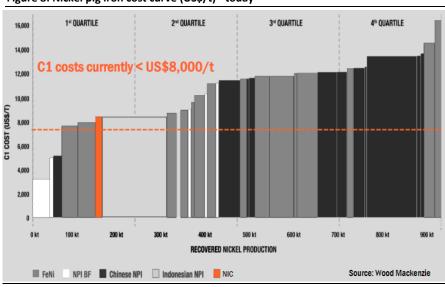


Figure 8: Nickel pig iron cost curve (US\$/t) - today

Source: Nickel Mines presentation March 2020, Wood Mackenzie



#### **Rotary Kiln Electric Furnace (RKEF)**

Laterite nickel ores are formed from intense tropical weathering of olivine rich ultramafic rocks. Laterites are split into two types;

- **Limonite** (or oxide types) are the surface layer where oxidation and weathering leach out magnesium and silica and leave an iron rich deposit.
- Saprolite ore forms beneath the limonite layer and typically consists of 1.2-2.5% nickel.

Both types of ore can be processed via heap leaching, high pressure acid leach (HPAL) or rotary kiln electric finance (RKEF).

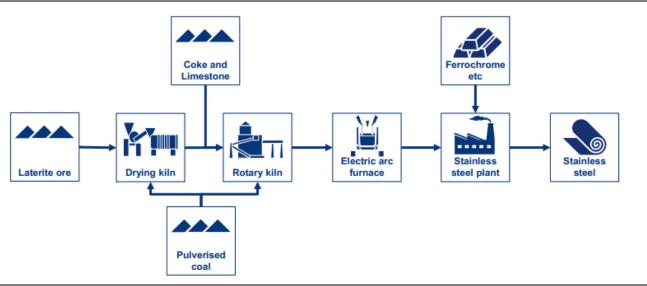
Heap leaching is the cheapest method but is only suitable for a limited type of ores with low clay content. HPAL is technically more challenging, but efficient when operating well and can treat a wide variety of ores. A drawback is the corrosive nature of the process and the difficulty in achieving stable operations.

The RKEF process consists of three main steps;

- **Calcination** heating the ore in a drying kiln to remove water and volatile impurities.
- **Prereduction** further heating of the ore in a rotary kiln in the presence of coke and limestone to reduce the ore (the reverse of oxidation).
- Smelting in an electric arc furnace to produce molten nickel pig iron which can then be either direct charged to the stainless steel production process or formed into NPI bricks for export.

A disadvantage of the RKEF process is its high energy usage, which can make it uncompetitive in regions with high energy prices. At the IMIP this not an issue due to the abundance of cheap coal. It is possible to improve the thermal efficiency by using the waste heat from the rotary kiln to heat the drying kiln, and to use the electric arc furnace gas as a fuel for the rotary kiln.

Figure 9: RKEF and downstream NPI usage process flow diagram



Source: Nickel Mines prospectus, Zhejiang Provincial Industry Design and Research Institute.



# **Key risks**

- The nickel price is volatile and is often driven by arbitrary policy changes such as the Indonesian export ban. As such, the price of nickel is relatively difficult to forecast and the actual price may differ substantially from our forecasts.
- Some investors may be concerned that the company operates in Indonesia, in
  partnership with a Chinese company and with Indonesian and Chinese strategic
  shareholders. However, it Nickel Mines is 'inside the fence' and not an outsider.
  The relationship with Tsingshan is strong, and Tsingshan has a strong relationship
  with Indonesian authorities.
- Smaller companies carry more significant 'key personnel' risk than larger organisations. If senior management depart the company, then it could delay projects or exacerbate operational risks.

#### **Core drivers and catalyst**

- Nickel is predominantly used in the production of stainless steel (69% of consumption) but is finding growing use as a cathode in lithium ion batteries. The electrification of light vehicles is likely to see increased demand for nickel. Consensus forecasts expect the nickel price to increase ~30% from today's spot price at US\$5.90/lb to an incentive price of ~US\$7.50/lb once the COVID-19 demand shocks abate. We agree.
- Nickel Mines has an 80% economic interest in two RKEF projects in the IMIP. Even
  at current low nickel prices of ~US\$5.90/lb the projects are strongly free cash flow
  positive (US\$160mpa, 100% basis combined). At a mid-cycle nickel price of
  US\$6.50/lb, the two projects will generate combined free cash flow of about
  US\$210mpa (100% basis).
- We value each RKEF project at US\$947m (100%, NPV @ 11%) and Nickel Mines recently exercised an option to increase its economic interest from 60% to 80% in both projects for US\$120m.



# **Rating Classification**

Buy	Expected to outperform the overall market
Hold	Expected to perform in line with the overall market
Sell	Expected to underperform the overall market
Not Rated	Shaw has issued a factual note on the company but does not have a recommendation

# **Risk Rating**

High	Higher risk than the overall market – investors should be aware this stock may be speculative
Medium	Risk broadly in line with the overall market
Low	Lower risk than the overall market

RISK STATEMENT: Where a company is designated as 'High' risk, this means that the analyst has determined that the risk profile for this company is significantly higher than for the market as a whole, and so may not suit all investors. Clients should make an assessment as to whether this stock and its potential price volatility is compatible with their financial objectives. Clients should discuss this stock with their Shaw adviser before making any investment decision.



#### **Disclaimer**

Shaw and Partners Limited ABN 24 003 221 583 ("Shaw") is a Participant of ASX Limited, Chi-X Australia Pty Limited and the holder of Australian Financial Services Licence number 236048.

ANALYST CERTIFICATION: The Research Analyst who prepared this report hereby certifies that the views expressed in this document accurately reflect the analyst's personal views about the Company and its financial products. Neither Shaw nor its Research Analysts received any direct financial or non-financial benefits from the company for the production of this document. However, Shaw Research Analysts may receive assistance from the company in preparing their research which can include attending site visits and/or meetings hosted by the company. In some instances, the costs of such site visits or meetings may be met in part or in whole by the company if Shaw considers it is reasonable given the specific circumstances relating to the site visit or meeting. As at the date of this report, the Research Analyst does not hold, either directly or through a controlled entity, securities in the Company that is the subject of this report. Shaw restricts Research Analysts from trading in securities outside of the ASX/S&P100 for which they write research. Other Shaw employees may hold interests in the company, but none of those interests are material.

DISCLAIMER: This report is published by Shaw to its clients by way of general, as opposed to personal, advice. This means it has been prepared for multiple distribution without consideration of your investment objectives, financial situation and needs ("Personal Circumstances"). Accordingly, the advice given is not a recommendation that a particular course of action is suitable for you and the advice is therefore not to be acted on as investment advice. You must assess whether or not the advice is appropriate for your Personal Circumstances before making any investment decisions. You can either make this assessment yourself, or if you require a personal recommendation, you can seek the assistance of your Shaw client adviser. This report is provided to you on the condition that it not be copied, either in whole or in part, distributed to or disclosed to any other person. If you are not the intended recipient, you should destroy the report and advise Shaw that you have done so. This report is published by Shaw in good faith based on the facts known to it at the time of its preparation and does not purport to contain all relevant information with respect to the financial products to which it relates. The research report is current as at the date of publication until it is replaced, updated or withdrawn. Although the report is based on information obtained from sources believed to be reliable, Shaw does not make any representation or warranty that it is accurate, complete or up to date and Shaw accepts no obligation to correct or update the information or opinions in it. If you rely on this report, you do so at your own risk. Any projections are indicative estimates only and may not be realised in the future. Such projections are contingent on matters outside the control of Shaw (including but not limited to market volatility, economic conditions and company-specific fundamentals) and therefore may not be realised in the future. Past performance is not a reliable indicator of future performance. Except to the extent that liability under any law cannot be excluded, Shaw disclaims liability for all loss or damage arising as a result of any opinion, advice, recommendation, representation or information expressly or impliedly published in or in relation to this report notwithstanding any error or omission including negligence.

DISCLOSURE: Shaw will charge commission in relation to client transactions in financial products and Shaw client advisers will receive a share of that commission. Shaw, its authorised representatives, its associates and their respective officers and employees may have earned previously or may in the future earn fees and commission from dealing in the Company's financial products.

RESEARCH TEAM: For analyst qualifications and experience, refer to our website at http://www.shawandpartners.com.au/about/ourpeople/research

RESEARCH POLICY: For an overview of our Research policy, refer to our website at https://www.shawandpartners.com.au/media/1267/ researchpolicy.pdf

If you no longer wish to receive Shaw research, please contact your Financial Adviser to unsubscribe.

Sydney | Head Office Level 7, Chifley Tower 2 Chifley Square Svdnev NSW 2000 Telephone: +61 2 9238 1238 Toll Free: 1800 636 625

Melbourne Level 20 90 Collins Street Melbourne VIC 3000 Toll Free: 1800 150 009

Brisbane Level 28 111 Eagle Street Brisbane QLD 4000 Telephone: +61 3 9268 1000 Telephone: +61 7 3036 2500 Toll Free: 1800 463 972

Adelaide Level 23 91 King William Street Adelaide SA 5000 Telephone: +61 8 7109 6000 1800 636 625 Toll Free:

Canberra Level 7 54 Marcus Clarke Street Canberra ACT 2600 Telephone: +61 2 6113 5300 Toll Free: 1800 636 625

Perth Level 20 108 St Georges Terrace Perth WA 6000 Telephone: +61 8 9263 5200 1800 198 003 Toll Free:

Holder of Australian Financial Services Licence Number 236048 | ABN 24 003 221 583 | Participant of ASX Limited, Chi-X Australia Pty Limited | www.shawandpartners.com.au