



**The Emerging Force in the  
Premium Zircon Industry**



**2020 Ruidow Zirconium Conference**

**Oliver B. Hasler  
Chairman & CEO**

# Disclaimer

A short, solid orange horizontal bar located below the 'Disclaimer' heading.

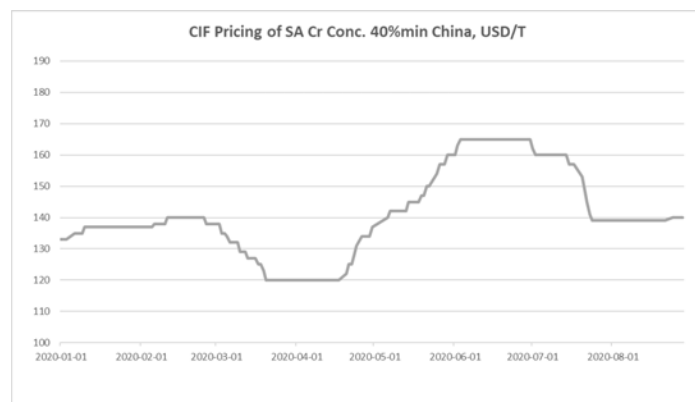
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# CONTENT

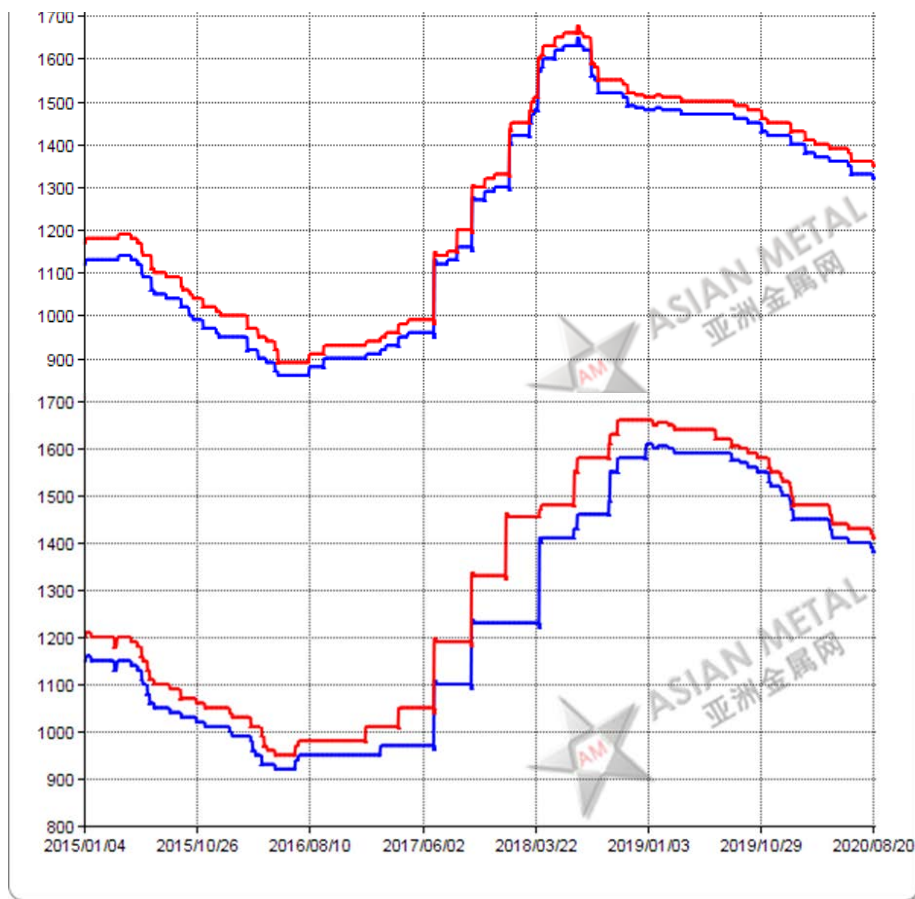
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Zircon Global Market Dynamics	04
Chinese Zircon Market	07
Global Supply Situation	09
Our Asset	11
Pyx and China	26

# High Volatility of Commodity Pricing in 2020



# Zircon Prices

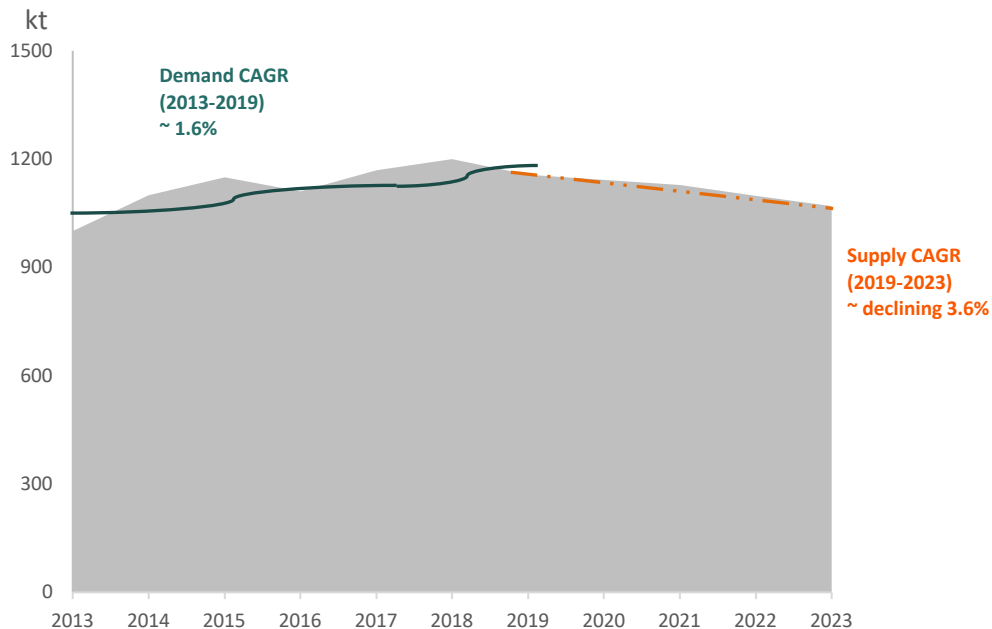


**Zircon Sand Indonesian Zr(Hf)O2  
66%min CIF China USD/mt**

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66%min CIF China USD/mt**

# Zircon Scarce & Concentrated Supply, Boosting Price

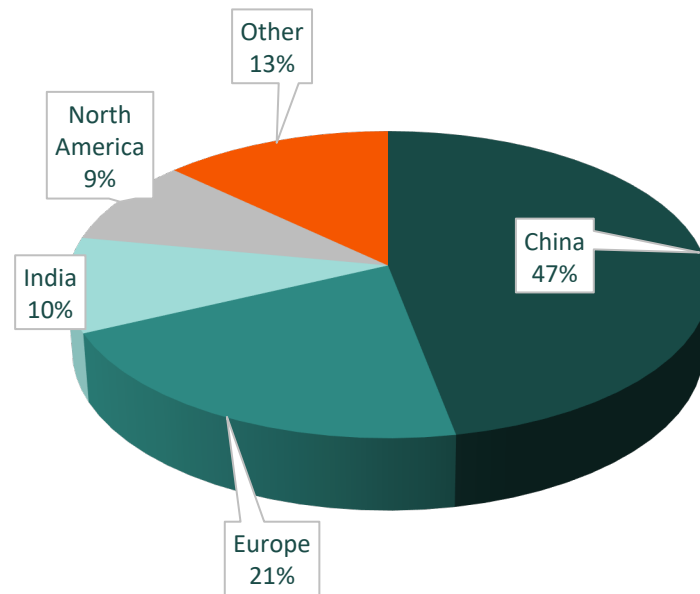
## GLOBAL ZIRCON SUPPLY AND DEMAND OUTLOOK



Note: Illustrative demand CAGR (2019-23) are indicative only.

Source: Cedrus Investments Analysis

## GLOBAL ZIRCON DEMAND BY REGION (2018)



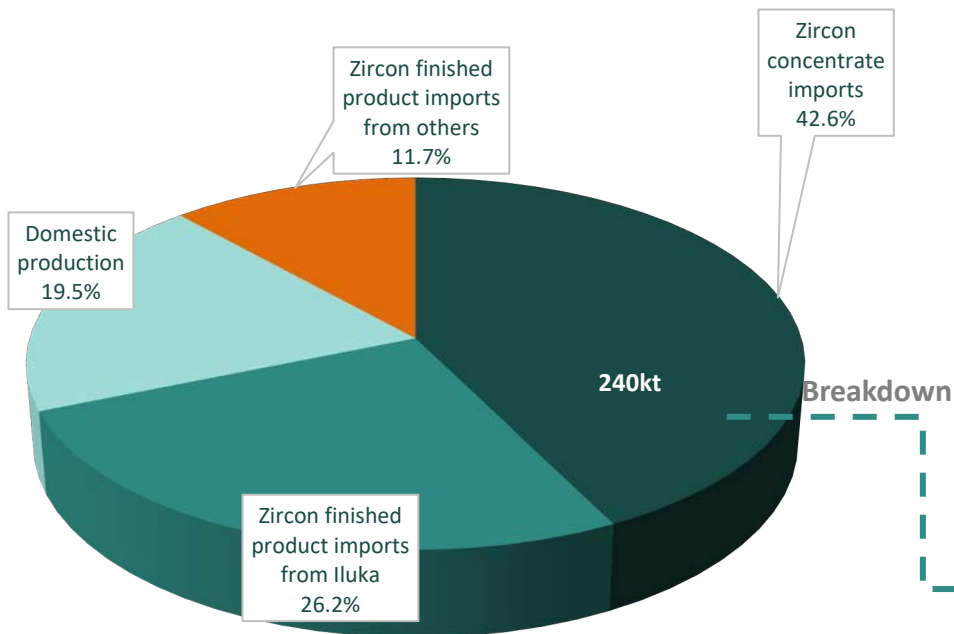
Source: Cedrus Investments Analysis

**Analysts expect a substantial supply short-fall to emerge, supporting a robust zircon price environment in the coming years.**

# China Zircon Demand

## CHINA ZIRCON DEMAND BY SOURCE OF SUPPLY

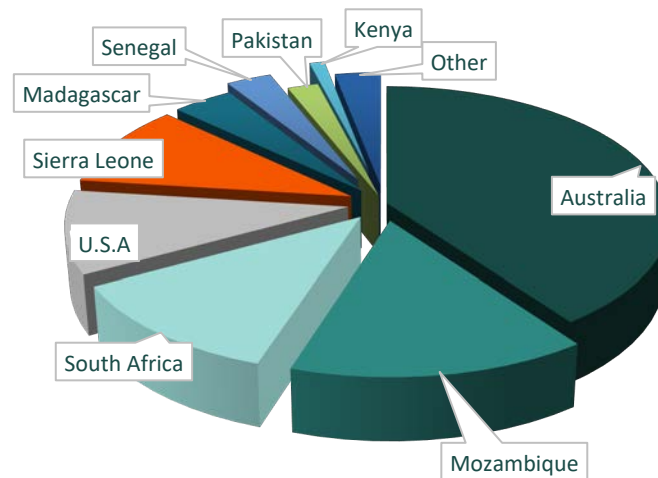
2018 Total Zircon Demand ~ 564 kt



- Aprox 50% of global supply
- Zirconium reserves rank fifth globally (0.7% world wide)

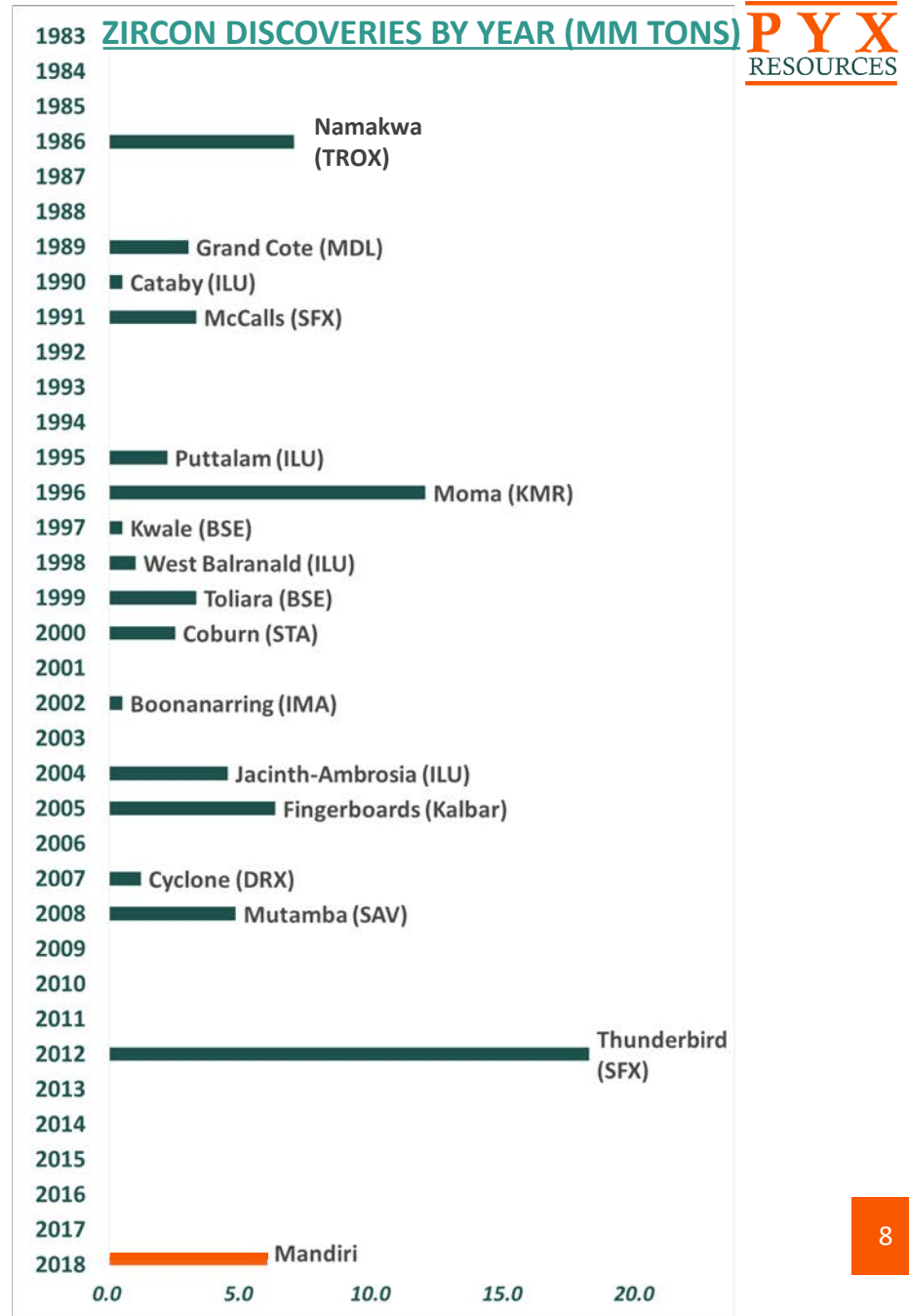
## CHINA ZIRCON CONCENTRATE IMPORTS BY COUNTRIES

2018 Total Zircon Concentrate Imports ~ 240 kt



# No New Zircon Discoveries Since 2012

- Pyx's Mandiri project in Indonesia is the 5th largest mineral sands in the world
- Biggest zircon discovery in the world since 2012.





# Pyx and China

Continuous increase  
in PYX zircon supply  
possible to meet  
new demands

Effective logistics &  
customer service

Focus on Ceramic  
Industry with 93-96%  
Whiteness

High quality  
premium Zircon

Cooperate with  
innovative industries

Australian listed  
Co with strong  
ESF-focus

International  
pricing

Indonesia is a  
Belt and Road  
country



# 2020 Zircon Market Dynamics

## Supply

- Pyx's Mandiri deposit is the only major mineral sands discovery since 2012.
- Global supply is highly concentrated with top 5 producers controlling over 70% of world production.
- Lack of supply potential for the foreseeable future and the future demand may exceed supply.
- Grade of existing deposits is declining and USGS estimates global zircon reserves reduced from 78 Mt to 62 Mt.
- A significant proportion of global zircon supply between 2016 and 2019 are from diminishing inventory, leading to a potential shortage of supply even if demand remains at current level.

## Demand

- China = 50% of worldwide demand.
- Global zircon milling mostly focused on meeting demand from the ceramics industry (54%), followed by foundry (14%) and refractory (11%).
- Consumption of zircon by other novel applications such as medical implants, zirconium based chemicals (for electronics, fiber optics etc), and extraction of zirconium metal for corrosion resistant alloys and nuclear reactor cores and rods are growing in importance.
- Global trade tensions and COVID-19 pandemic had relatively minor impact on zircon demand with resumed operations in China leading to substantial demand for high-grade zircon.

Application	Market Dynamics
<b>Ceramics</b>	<ul style="list-style-type: none"><li>• Output and export of ceramic tiles in China is declining due to global economic environment, real estate policy, consumption upgrades and demand shift.</li><li>• However ceramic sanitary ware in China is growing at more than 6% p.a.</li><li>• China's total ceramic export value over US\$ 12.5 billion.</li></ul>
<b>Foundry</b>	<ul style="list-style-type: none"><li>• China's foundry production output to 41 mt of iron cast products and 7.3 mt of aluminum cast products, representing a 48% and 37% of global output, respectively.</li><li>• China's rapid foundries and casting industry growth is driven by the automotive industry, and sectors such as aerospace, high-tech ships, medical devices and agri machinery.</li><li>• China represents 90% of the US\$4.2 billion growth in the foundry market.</li></ul>
<b>Refractory</b>	<ul style="list-style-type: none"><li>• Zircon can be used as a neutral type of refractory, accounting for 60% of the total industry share which was over USD 30 billion in 2018. The market for refractories is anticipated to reach USD 41 billion by 2025, registering a CAGR of over 4%.</li><li>• Strong product demand from aerospace, electrical, automotive, glass, cement industries is expected to drive refractories market size globally.</li></ul>
<b>Chemical</b>	<ul style="list-style-type: none"><li>• Zirconia and zirconium based chemicals are widely used for pigment, electronics, catalysts, fiber optics, and water treatment.</li><li>• Growing importance with higher market share growth than other markets</li></ul>

# Alluvial Deposits in Kalimantan



# Strategic Location



# Producing asset since 2015





ZrO<sub>2</sub>+HfO<sub>2</sub> 66.0% +

TiO<sub>2</sub> 0.06 – 0.08%

Fe<sub>2</sub>O<sub>3</sub> 0.02 – 0.05%

Al<sub>2</sub>O<sub>3</sub> 0.2%

# Mandiri Resources Support a Long Mine Life

## Mineral Resources above 2% HM lower block cut-off grade (unrounded)

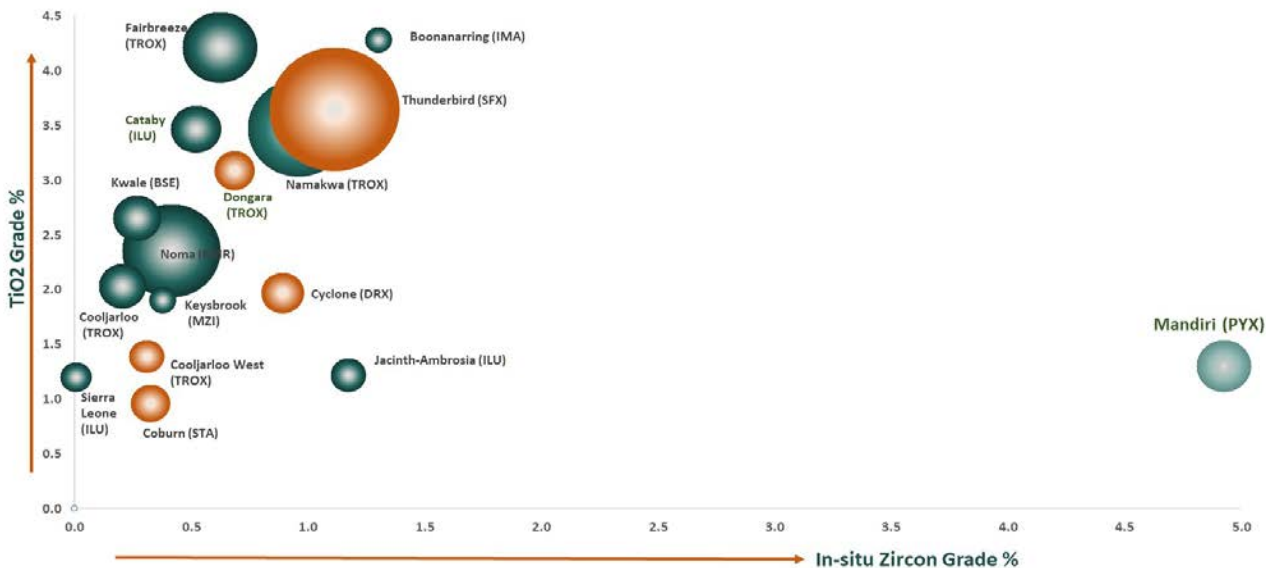
Area	Category	Tonnage (Mt)	HM (%)	Slimes (%)	Oversize (%)
Mandiri	Inferred	126.3	7.43	8.98	16.14

## Assemblage of Ore and Finished Products

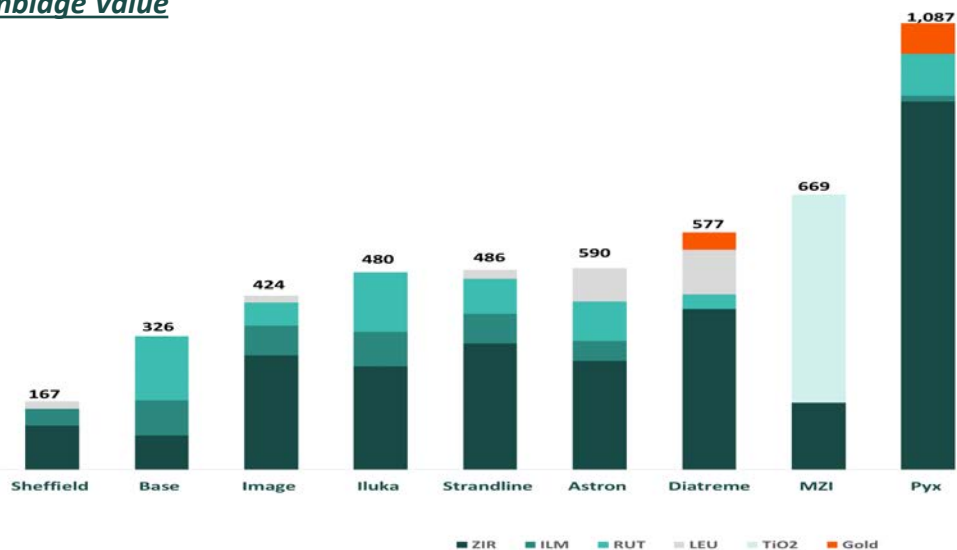
	Mining		Finished Product	
	Mined HM (tons)	Assemblage (%)	Finished Product (ton)	Assemblage (%)
Zircon	64	64%	64	97%
- of which Zirconium	43	43%	43	65.5%
- of which Silica	21	21%	21	32%
Rutile	8.5	8.5%	0	0%
Ilmenite	9.5	9.5%	0	0%
Other	18	18%	1.7	3%
Slime/OS	0	0%	0	0%
<b>Total</b>	<b>100</b>	<b>100%</b>	<b>65.7</b>	<b>100%</b>



# Pyx is a Clear Outlier in Terms of Zircon Grade

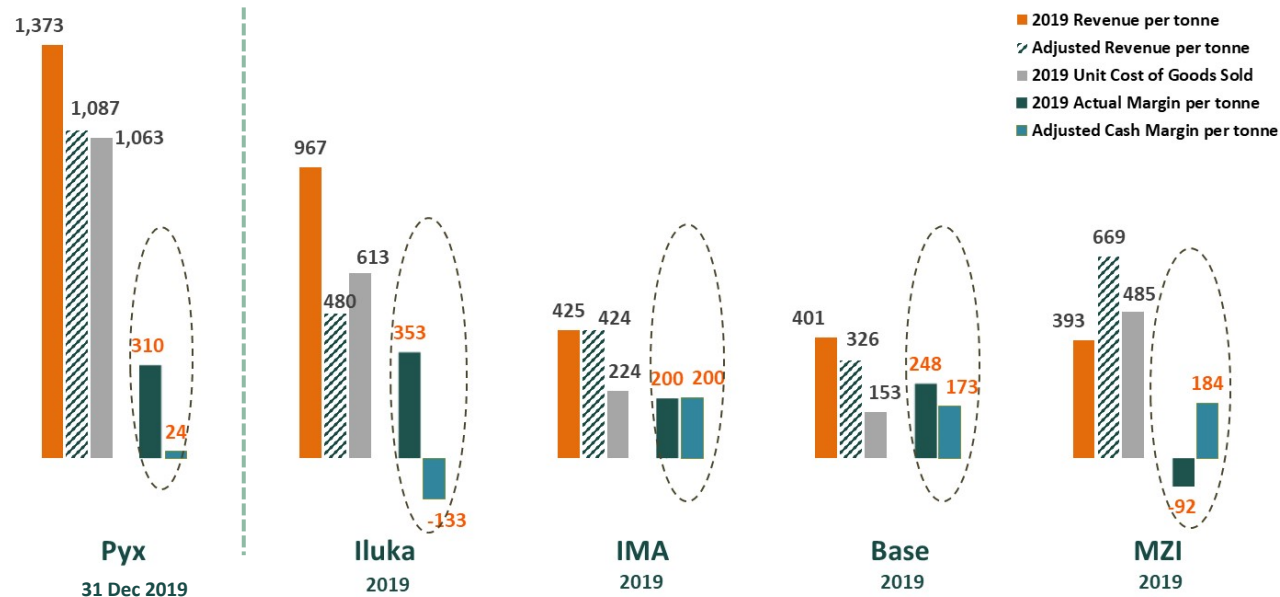


## Assemblage Value US\$



# Pyx Superior Cash Margins are Sustainable Long Term

## ACTUAL MARGIN AND ADJUSTED MARGIN COMPARISONS OF MAJOR ZIRCON PRODUCERS (in US\$)



Note: Adjusted Revenue calculated as the weighted average value on mineral components disclosed on each company's 2019 Resource Statement.

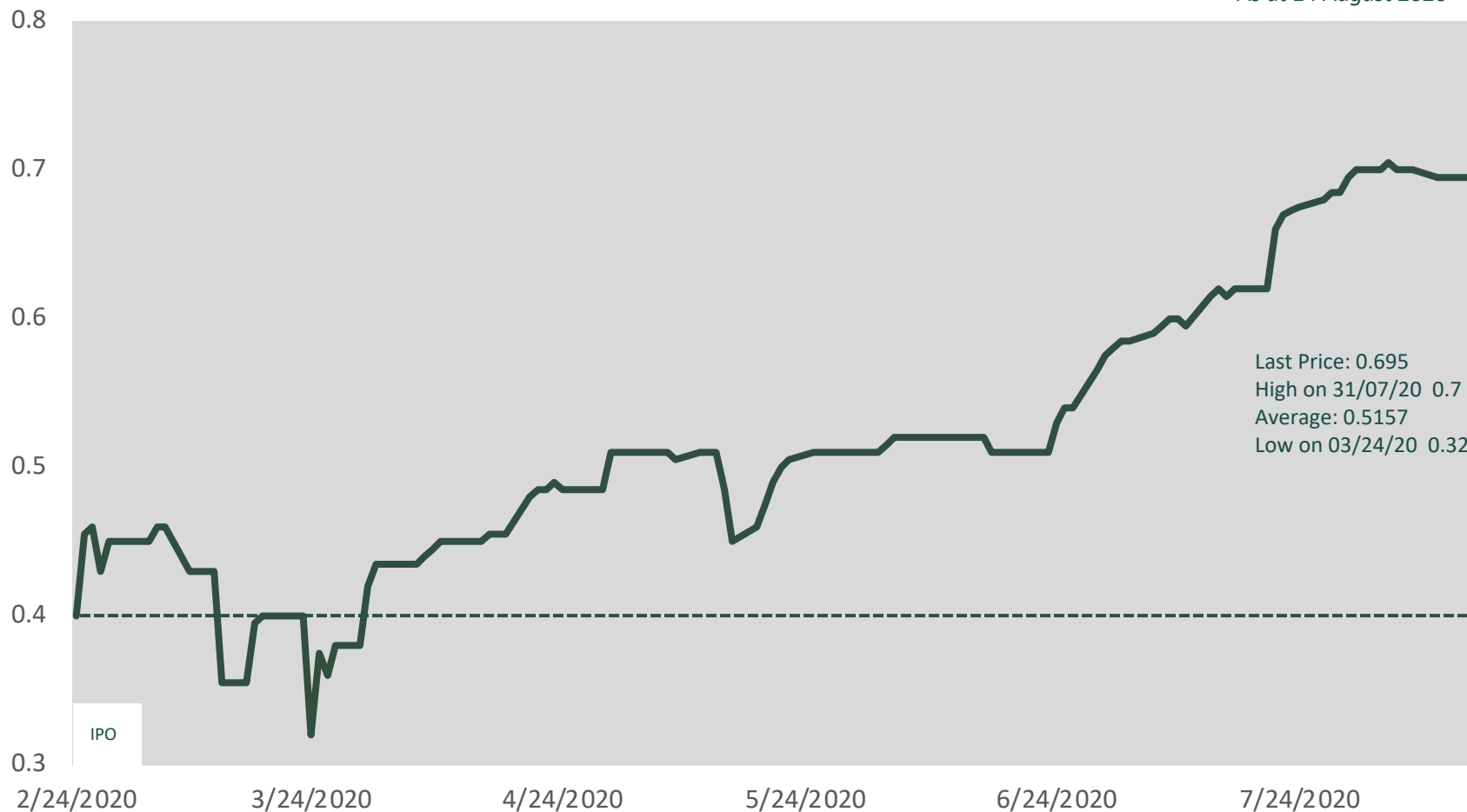
Source: Public Filings, Cedrus Investments Analysis

# Additional Upside Potential in the Mid Term



# Strong Price Performance post IPO

As at 14 August 2020



Last Price: 0.695  
High on 31/07/20 0.7  
Average: 0.5157  
Low on 03/24/20 0.32

Note: PYX commenced trading on the National Stock Exchange of Australia (NSX) on 25 February 2020.

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# Competent Person Statement and Cautionary Note

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Dr John Chisholm, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Chisholm is engaged by Pyx and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Chisholm consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's exploration, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information.

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