

MORNING COMMENT

PYX Resources

Operational update for the year ending 31 December 2022

PYX is a producer of premium-quality zircon ($ZrSiO_4$) from Indonesia and a growing production of rutile/ilmenite (TiO_2 and $FeTiO_3$) from its Mandiri plant. Today PYX provides an operational update for the year ending 31 December 2022. Production and sales metrics were all improved: zircon production up 25% over CY 2021 to 9.1kt (all of which was sold) with first production of rutile (in January) and ilmenite (in June) producing 7.5kt in year (only a small portion sold as PYX awaits export permits). This production was into a robust and improving market: zircon price for PYX's zircon up 36% (\$1,811/t to \$2,457/t). With its low impurities (low aluminium oxide at less than 0.2% and with a uranium and thorium content below 500 ppm) PYX's zircon is in demand as a premium product for the high-end uses, typically being used for ceramics manufacturing (for example tiles, sanitary wear) but also for high tolerance casting/foundry applications and additive manufacturing. We continue to see fair value at 129p/sh which assumes a low risk to PYX's plans given its demonstrated production of high-grade product.

Today's operational update puts the development of PYX in the spotlight (Table 1). There has been an increase in zircon production and sale volumes (both 9.1kt) with a YoY increase in zircon produced of 25% (compared with the previous year). During the year PYX started production of rutile (January) and ilmenite (June) with joint production volumes of 7.5kt and sales volumes of 0.3kt. Sales of rutile and ilmenite will take place once an export licence is gained. The background to the year was a robust zircon price environment with the average price realised up 36% compared to the previous year at \$2,457/t.

Table 1: Key operating statistics FY 2022 (ending December 2022)

	FY 2022	FY 2021	Variance
Zircon produced	9.1kt	7.2kt	+25%
Zircon sales	9.1kt	6.9kt	+33%
Titanium dioxide minerals produced	7.5kt	-	
Titanium dioxide minerals sold	0.3kt	-	
Yearly average price zircon (USD/t)	2,457	1,811	+36%
Total produced	16.6kt	7.2kt	+129%
Total sold	9.5kt	6.9kt	+38%

Source: WH Ireland Research, PYX Resources

We reiterate the strong investment case for PYX

- **Strong, scalable production base.** PYX has been producing high-grade zircon concentrate from Mandiri since 2015 and successfully marketing it to high-tech buyers. Production has steadily increased to 9kt/yr and PYX has plans to take production at its Mandiri mine to 48kt/yr within five years.
- **Large resources:** Between Mandiri (operating) and Tisma (project), PYX has 263.5Mt of inferred resources (JORC) with an average assemblage value (mid-2022) of \$1,680/t. Zircon and rutile/ilmenite are currently recovered and sold by PYX. Other components of the mineral assemblage, including leucoxene (amongst others including gold) are not currently recovered and offer further potential value.
- **High grade:** There are few other high-grade zircon projects (Figure 1) in the world – Mandiri and Tisma stand out in terms on insitu assemblage value (Figure 2).
- **Surface deposits:** Little or no stripping is required (more at Tisma than Mandiri) and the mineral sands are unconsolidated. Operating costs are low and will fall as production scales up.
- **Short time to production – fast track:** No long construction time – simple plant build, fed with material from the mineral resource quickly.
- **No lasting trace:** Mineral sand operations leave a light touch. Mining the sand at surface, removing the heavy mineral fraction and reclaiming the areas immediately

CORPORATE

Share Price (last close) 17.7p

Ticker	PYX
Index	LSE
Sector	Mining
Market Cap	£139m

Marketing Communication

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means that little trace of mining is left.

- **Mineral assemblage sets PYX aside from its peers:** PYX's resource base sets it apart from its competitors. These are high-grade zircon deposits compared with their peers (Figure 1). Premium zircon – with its low radioactivity (U+Th <500ppm), low alumina and high whiteness – is ideal for high-tech applications and is sought after by blue-chip companies.
- **Absence of a zircon project pipeline a positive for PYX:** The value for PYX does not fully reflect the lack of availability of other global projects for zircon. With growing demand, an uncertain supply (the recent Richard's Bay force majeure, for example) and a poor project pipeline, we expect a robust zircon price for several years to come. It is during these years that PYX will be established as a significant global zircon producer, in our view
- **Use of zircon growing:** The use of zircon is growing and new-industry applications are being found for which zircon is proving necessary in the carbon transition. For example, zircon alloys are used in many sectors (nuclear reactors and the automotive industry). Zircon is also used in hydrogen cells and in ceramic roof tiles to cool buildings
- **Strong returns:** Our simple DCF model returns an NPV₁₀ of \$874.3m using a long-term zircon price less than today (we use \$2,000/t). Returns are driven by the grade (high) and capex/opex (low) against our conservative pricing as the mineral sands sector enters a boom. We risk the operations lightly as there is little operational risk with much of PYX derived from ongoing operations.
- **Full details provided in our initiation note (05.04.2022)**

Figure 1: Mandiri and Tisma stand out in terms of zircon grade

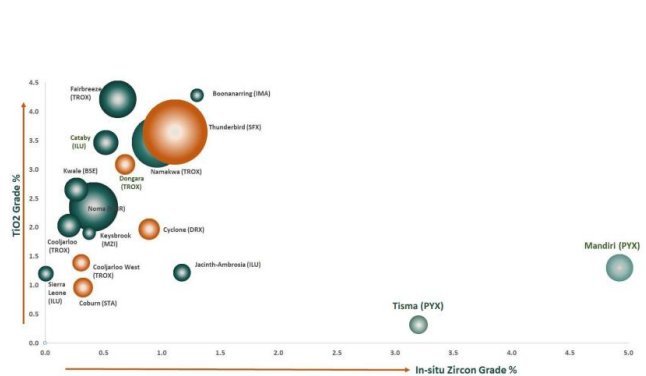
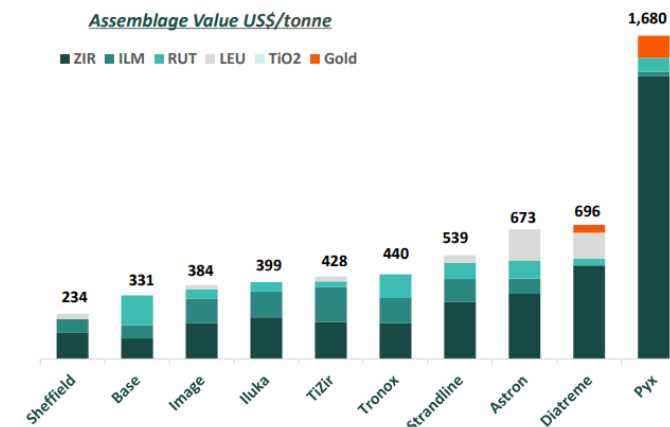


Figure 2: Assemblage value \$/t



Source: WH Ireland Research, PYX Resources

PYX has developed its 100%-owned Mandiri mine selling high-grade (>65.5%) premium zircon (plus ilmenite and rutile) to high-tech buyers at historically high SPOT prices. It is bringing mining back in-house, expanding production at Mandiri and commissioning production from Tisma, making it a producer on a global scale.

The zircon market is robust with decade-high prices, a poor project pipeline, supply disruption and growth into new technology sectors. PYX is an important component of necessary future production.

We see fair value in PYX at 129p/share. We see fair value in PYX at 129p/share. We value PYX on a mixed basis using a simple average between NPV₁₀ and a peer multiple P/E of 7x. A P/E of 7x places PYX between the high value, large producer of Iluka (ASX:ILU, N/R) with a P/E of ~8x and the lower value, bulk producers Kenmare (LSE:KMR, N/R) and Base Resources (AIM:BSE, N/R) with P/E's of ~3-4x. PYX has a simple business model to produce premium zircon (and minor rutile and ilmenite) at high margins. We view it as low risk, with the biggest risk at this early stage of access to capital.

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Speculative Buy	0	0.0	0	0.0
Outperform	0	0.0	0	0.0
Market Perform	0	0.0	0	0.0
Underperform	0	0.0	0	0.0
Sell	0	0.0	0	0.0
Total	68.0	100.0	66.0	100.0

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Company Name	Table of interest number	12-month recommendation history	Date
PYX Resources (PYX)	2,3,4,5	Corporate	05.04.22

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