

## BRIEFING PAPER MINERAL SANDS CYCLES

APRIL 2013

### INTRODUCTION

This briefing paper is designed to provide information on some recent market cycle characteristics in mineral sands, as they have and may in future influence Iluka's financial performance.

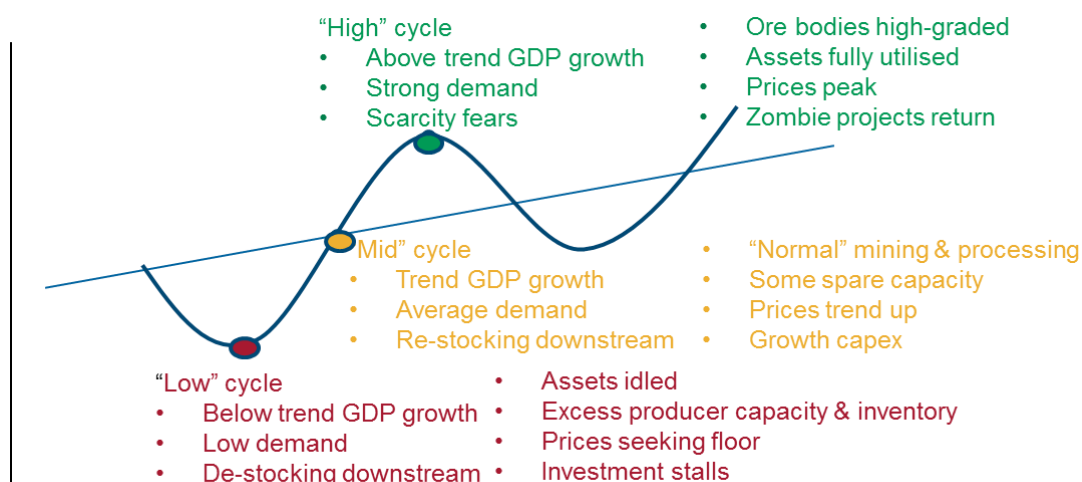
The mineral sands industry, as with other mineral resources sectors, can experience volatility in physical sales volumes and financial results. This has been a feature of Iluka's recent performance and can be attributed to a combination of the following factors:

- Iluka's emergence from legacy (and price-constraining) contracts in key high grade titanium dioxide markets, from the end of 2010;
- a move to shorter-dated zircon sales arrangements;
- the above occurring in markets which were believed to be supply constrained and therefore presented positive pricing conditions;
- slowing economic growth and its impact on global demand for mineral sands products, especially in 2009 (for zircon in particular) and in 2012 (coincidentally for both zircon and high grade titanium dioxide feedstocks);
- subsequent demand recovery, which in late 2009 and early 2010 was dramatic for zircon, in part associated with government-led economic stimulus measures in key markets;
- the relatively small physical volumes in both zircon and high grade titanium dioxide markets which may exacerbate cycle characteristics, when compared to physically larger minerals sectors; and
- inventory stocking and destocking through both titanium dioxide and zircon value chains.

### Mineral Sands Cycle Characteristics

The mineral sands sector has displayed characteristics over recent years which could be argued to equate to "high", "mid" and "low" cycle conditions. Illustrative elements of cyclical conditions and associated industry characteristics are shown over the page, as are variances in Iluka's sales volumes over recent years.

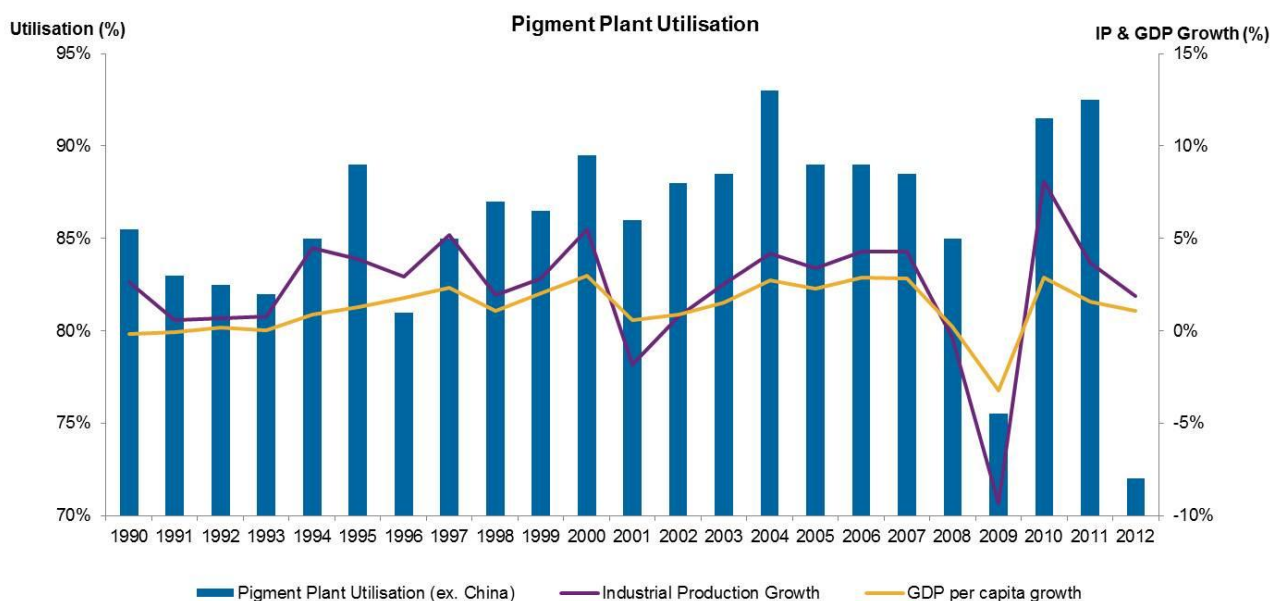
## Illustrative Mineral Sands Cycle Characteristics



Iluka conveyed in its 2012 full year results, released in February 2013, that it considered: “...that it is in the low period in terms of the business cycle for mineral sands” and that “...unlike the previous low period in 2009, the company experienced a severe coincident reduction in demand for both its zircon and high grade titanium dioxide products.” Iluka has sought to match its production to demand and/or be prepared to build and draw down inventory in light of prevailing demand conditions. This was undertaken for the greater part of 2012 when the company reduced production and built inventory. While this may have resulted in some ceding of market share, Iluka considered this approach appropriate (in terms of shortening the time spent in the “low period”) and therefore consistent with a focus on returns in the medium term.

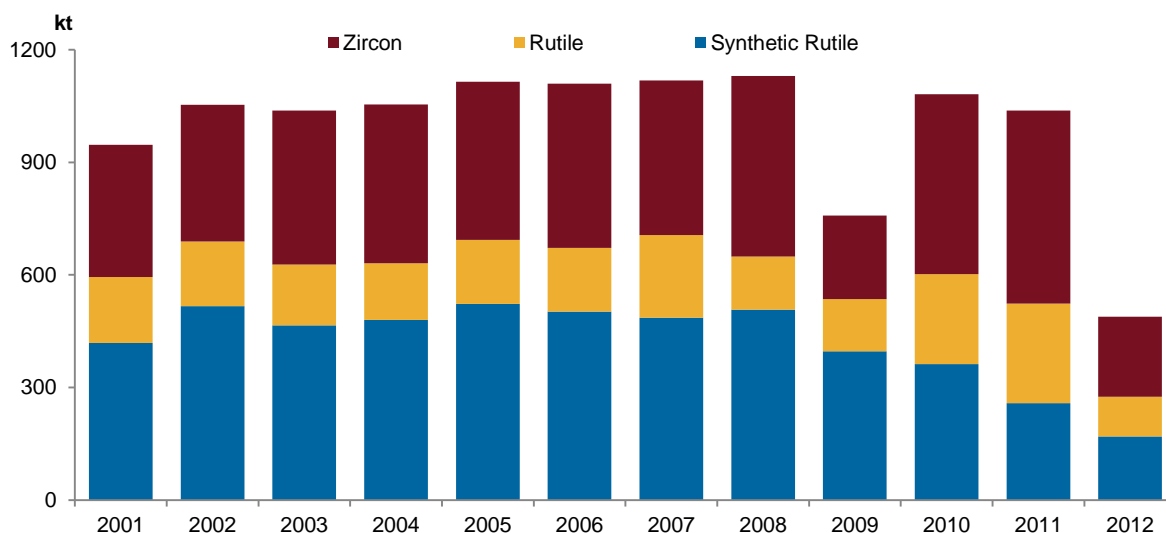
## Pigment Plant Capacity Utilisation

The following chart indicates the variation in pigment plant utilisation levels which, in turn, can influence demand for high grade titanium dioxide feedstocks (for example, rutile and synthetic rutile). At lower utilisation rates, such as 2009 and the historically low level in 2012, demand for high grade feedstocks is typically lower. As pigment plant utilisation returns to more usual to high utilisation rates, demand for the higher grade feedstocks is typically stronger. This is an example of one cyclical factor in the mineral sands industry, in this case downstream of Iluka but in a sector which currently accounts for approximately 90 per cent of high grade titanium feedstock demand.



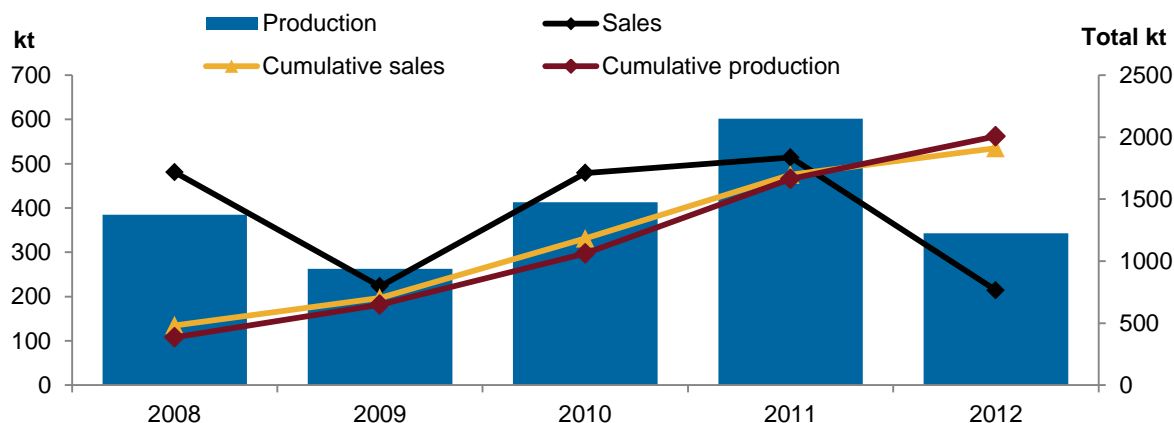
The following chart shows Iluka's total historical sales levels of its higher value products of zircon, rutile and synthetic rutile. Iluka's 2012 combined zircon/rutile/synthetic rutile sales of 489 thousand tonnes were around half the level of "high" cycle levels at over one million tonnes (for example, in 2008 and 2011) and a third less than 2009 levels. Pre-2007, the minor variation in sales reflects the smoothing effect of long term contracts, which were then the norm. This was also a period where pricing was constrained contractually and returns to Iluka shareholders were inadequate.

### Iluka Historical Sales Volumes



Iluka has responded to changing market conditions by flexing production, an ability which has been enhanced in recent years by the integration of its production base. As can be seen from zircon sales and production volumes below, annual production levels have varied but have, over time, closely matched sales. As indicated in the company's production guidance for 2013 (refer ASX Release, Iluka Key Physical and Financial Parameters 2013, 21 February 2013), Iluka is currently running its operations at a lower production output with the aim of drawing down on finished goods inventory, before restoring more usual production levels. In doing so, the company has sought to reduce costs and production-related capital expenditure. Nonetheless, such operational settings inevitably introduce some inefficiencies, as reflected in a higher unit cash costs under such situations.

### Iluka Five Year Zircon Sales and Production



### Iluka's Historical Physical and Financial Characteristics

The table on the page 5 summarises physical production, sales, unit cash cost and other financial parameters over recent years. This data reflects the variability of business performance characteristics during periods which can be considered to reflect "high" (such as 2011), "mid" and "low" (such as 2009 or late 2012/early 2013) cycle conditions. Note that such data covers a limited time period and should not be used as a guide to future outcomes, as asset configuration, industry structure, market forces, pricing dynamics, production and other costs, as well as other factors may be different.

From this limited historical period, and cognisant of Iluka's production capacity, generic cycle characteristics may be summarised as follows.

## Illustrative Summary Cycle Characteristics

“High”	“Mid”	“Low”
<ul style="list-style-type: none"> <li>Production/sales of ~1.1 -1.3mt of Z/R/SR</li> <li>Healthy margins, high RoC &amp; RoE</li> </ul>	<ul style="list-style-type: none"> <li>Production/sales of ~0.9-1.0 mt of Z/R/SR</li> <li>Attractive margins, positive RoC and RoE</li> </ul>	<ul style="list-style-type: none"> <li>Production/sales of ~450-600 kt Z/R/SR</li> <li>Lower margins, depressed/negative RoC and RoE</li> </ul>

Total production influenced most notably by the level of synthetic rutile capacity utilised – indicative total capacity of 500 - 550kt with 4 kilns operational. Mid and low case above assumes either 1 or 2 kilns operational.

## Iluka Historical Physical and Financial Characteristics 2008 - 2012<sup>1</sup>

	2008 <sup>2</sup>	2009 <sup>3</sup>	2010	2011	2012 <sup>4</sup>	2013
<b>Production<sup>5</sup> kt</b>						
Zircon	385	263	413	601	343	~220
Rutile	140	141	250	281	220	
Synthetic rutile	467	405	348	286	248	
<b>Total Z/R/SR</b>	<b>992</b>	<b>809</b>	<b>1,011</b>	<b>1,169</b>	<b>811</b>	~200
<b>Sales kt</b>						
Zircon	481	223	479	514	214	N/A
Rutile	142	139	240	266	105	
Synthetic rutile	507	397	362	258	170	
<b>Total Z/R/SR</b>	<b>1,130</b>	<b>758</b>	<b>1,081</b>	<b>1,038</b>	<b>489</b>	
<b>Pricing US\$/t</b>						
Zircon	775	815	910	1,800	2,000	N/A
Rutile	550	510	560	1,100	2,400	
Synthetic rutile	460	460	480	875	1,700	
Minerals sands EBITDA/revenue %	21	13	29	60	68	N/A
Return on capital %	7.9	(9.6)	5.0	54.9	27.3	N/A
Return on equity %	7.9	(7.5)	3.2	42.5	23.2	N/A

## CONCLUSION

Iluka believes that a return to mid to high cycle market conditions will occur over time assuming demand recovery and an end to inventory destocking. This could, in turn, be expected to lead to higher Iluka production and sales levels and improved business efficiency. Furthermore, Iluka is of the view that the medium term fundamentals for the industry remain positive. Urbanisation in developing economies is expected to be associated with strong demand growth for tiles, coatings and manufactured goods, all containing mineral sands products. Demand will also benefit from new specialty end uses for zircon and titanium dioxide. On the supply side, challenges remain for material, timely increases in production from new projects. Those challenges are likely to have been exacerbated from a funding point of view given recent industry volatility and lower prevailing prices.

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<sup>1</sup> Note that such data covers a limited time period and should not be used as a guide to future outcomes, as asset configuration, industry structure, market forces, pricing dynamics, production and other costs, as well as other factors may be different.

<sup>2</sup> Titanium dioxide pricing and volumes were influenced by legacy contracts.

<sup>3</sup> Titanium dioxide pricing and volumes were influenced by legacy contracts.

<sup>4</sup> 2012 weighted average prices were higher than in previous periods, although market conditions led to an erosion of pricing especially in the second half of 2012.

<sup>5</sup> Over time production would be expected to equate to sales. Notional production capacities are: zircon ~500-550 ktpa; rutile ~200-240 ktpa; synthetic rutile 340-550 ktpa (dependent on number of synthetic rutile kilns in operation – 2 kilns ~340 ktpa; 4 kilns ~500-550 ktpa).