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# MINERAL SANDS BRIEFING PAPER

**May 2010**

An occasional briefing paper prepared by Iluka Resources to provide information relating to the mineral sands sector. Refer Disclaimer on page 5.

## Global Zircon Conference 2010, Shenzhen, China, 13 – 15 May 2010

*The following includes information presented at the Global Zircon Conference 2010. The Conference was organised by TZ Minerals International Limited ("TZMI") and Beijing Ruidow International Technology Co Limited. Iluka was a joint sponsor, in association with Unimin Australia Limited and Consolidated Rutile Limited ("CRL") - the latter now wholly owned by Unimin, a subsidiary of the Belgium based industrial minerals group, Sibelco. Iluka undertakes the marketing of CRL product on behalf of Unimin. Robert Porter, General Manager, Investor Relations, attended the conference and provides the following summary of some elements of the Conference, based on his own notes. The main global mineral sands industry conference is hosted by TZMI and is held October (this year in Hong Kong). Iluka makes no undertaking to provide future summary comments from industry conferences.*

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### Conference Background

Two hundred and twenty delegates attended the conference including most of Iluka's Chinese customers, as well as major European domiciled zircon customers with a production presence in China. Other existing and potential zircon raw material suppliers attended the conference. The conference was proceeded by a 'closed door' meeting of Iluka customers at which Iluka indicated its intention to proceed with a further general zircon price increase from 1 July 2010 and with an indication that prices may well rise again later in 2010. Pricing details were not discussed in this forum and Iluka's China Country Manager, Stephen Hay, indicated that Iluka would be involved in individual discussions with customers on pricing and supply arrangements over the coming weeks. Iluka does not provide pricing forecasts and will not disclose the details of these discussions nor comment on the veracity of several references at the Conference to expected zircon sand price increases from 1 July.

## Conference Summary Extracts

The following extracts are, by their nature, selective. Iluka is also cognisant that TZMI presented industry supply and demand forecast data which, while presented in a "public" forum, is TZMI's proprietary information. As such, while this paper covers some of the themes the TZMI speakers presented at the Conference, it does not reproduce their views on the level of a potential zircon supply deficit over the period to 2020, nor their view on short term pricing trends, as well as TZMI's revised low/base and high case for zircon pricing through to 2015 [note: TZMI provided Iluka with approval to replicate their previous "base" and "high case" zircon pricing forecasts in Iluka's publication – Key Physical and Financial Trends 2011-2013. This is available on Iluka's website]. TZMI is able to be contacted for the purchase of conference documentation.

Iluka also launched at the Conference an on-line internet sales portal with initial, small volumes of Murray Basin zircon offered at US$1,050/tonne (CFR/CIF – delivered to ports in China, Asia or India). Details on this initiative are available on the Iluka website associated with the ASX release – Iluka Launches On-line Zircon Sales Site, 17 May 2010.

### Summary of Key Themes

- Several Chinese presenters representing various sectors of the Chinese zirconium industry provided details of the importance of zircon sand/zirconium silicate to the following sectors of the Chinese economy: household ceramics, floor and wall tiles, sanitary ware, zirconium metal sponge manufacture (with application in the Chinese nuclear fuel industry) and zirconium chemicals manufacture.
- A large amount of consumption (domestic and export) statistics were presented for these sectors. They are not reproduced here but include the following high level data indicative of the scale of the Chinese market and demand:
  - China's ceramics industry produced 43 billion pieces in 2009;
  - household ceramics - 20.466 billion pieces, up 30.65 per cent;
  - ceramics and wall tiles - 6.724 billion square metres - up 21.6 per cent; and
  - sanitary ware - 177 million pieces - up 12.31 per cent [Presentation by Huang Xinhong, General Secretary of China's Ceramic Industry Association].
- While most Chinese production is for domestic consumption, there is an export sector for the above product categories. In 2009, despite the overall growth in production, exports declined associated with GFC conditions, as follows: exports of daily use ceramics down 6.6 per cent, exports of sanitary ceramics down 15.48 per cent, while wall and floor tile exports were up 2.15 per cent.
- China is the world's largest producer of zirconium oxy-chloride based ("ZOC") chemicals and in 2009 this segment of the industry represented consumption of 91 thousand tonnes of zircon sand (varying estimates of total 2009 zircon sand consumption were provided, but the ZOC component was approximately 20 per cent of the total).
- Zirconium metal is produced through the ZOC route with China commissioning nuclear grade zirconium sponge production lines (additional 1,000 tonnes per annum by 2011, another 1,000 tonnes per annum by 2013, bringing total capacity to 5,000 tonnes per annum).
- It was stated that nuclear grade zirconium is very important to China's nuclear power expansion plans, with the material having special processing properties: strong resistance to corrosion, a nuclear absorption cross-section and high pressure resistance. Every year a third of zirconium material used in nuclear power generation plants needs to be replaced, making it a "consumable." It was stated that 34 nuclear power generation units are under construction in China.
- Jiang Dongmin, General Manager Zhejiang Shenghua Biok Biology (Vice Chairman China Non-ferrous Metal Industry Association Titanium Zirconium & Hafnium Branch) stated: "The speed up of power station construction in China and the world can not only promotes the zirconium smelting and processing industries in China, but also drives the consumption of ZOC and zircon sand. This must be "a new piece of cake" in the market competitions [sic]."
- China remains overwhelmingly import dependent on zircon sand, currently from Australia and South Africa. A common view to emerge in presentations was that supply from Hainan Island may be restricted to around 40 to 50 thousand tonnes. Yu Ping, Zircon Industry Analyst at Ruidow stated: "For the construction of Hainan Island as an international travelling island and spaceflight based in Wenchang, it is hard for Wenchang concentrate production to have large increase, with an estimation of 40 to 50 thousand tonnes in the next few years. There are rich zircon sand resources in the shallow sea areas of Wanning, Hainan. But as restrained by the mining condition and techniques, it is hard to have large sand output in short term [sic]."
- Indonesian zircon concentrate supply is likely to continue at lower levels.
- There was some commentary that China is seeking to encourage alternative sources of supply although there was a comment that "…while alternative sources have been developed in Madagascar, Pakistan and Mozambique. But they are not in large scale yet." Source: Ruidow

- A view by TZMI that zircon sand availability over the period to 2020 was “highly unlikely” to be matched by new supply, and that price increases are justified.

## Iluka Presentation (please note developed for purpose of customer presentation – extracts only)

### China Zircon Market 2010

- January and February: 40-50kt/month consumption (normally a very quiet period).
- March and April: ~ 40-50kt/month consumption.
- Expect H1 2010 to be nearer 250kt consumption.
- Expect H2, 2010 to also be close to 250kt consumption.
- Total supply to end March ~150kt.
- Stock re-building to occur through H1, 2010.

China recovered from the Financial Crisis by Q3, 2009 and is now far exceeding consumption expectations.

Iluka expects monthly consumption in China to stay firmly in the range of 35-50kt per month and in the range of 450-500kt for all of 2010.

### 2010 Supply Status

The global zircon market in 2010 will be very tight.

- Excess Producer stocks sold by end of Q1, 2010.
- Lower than expected production from major new projects.
- Further declines in Indonesia production.
- Limited Hainan production.
- Financial difficulty of producers in Australia and Africa.
- Inadequate producer profitability for future investment.

### Iluka Position in 2010 and Beyond

- Production cannot yet keep pace with demand from all existing customers.
- Supply of Iluka zircon into China in 2010 likely to fall short of indicated Iluka customer demand.
- China’s consumption of zircon expected to continue to grow based on a combination of rising per capita income and urbanisation.
- Chinese Government’s stated goal of quadrupling per capita GDP by 2020 (on 2000 levels).
- McKinsey Consultants forecast by 2025:
  - urban population to reach 926 million people; and
  - floor space build per year to rise to 3.06 billion square metres (up from 1.18 billion sqm in 2005).
- Both factors are positive for zircon as demand linked to GDP per capita and construction.
- Zircon’s largest end use is in ceramic tiles.
- Usage increasing with rising incomes.
- Limited zircon supply from existing sources will maintain tightness in the global market from 2010.
- At current levels of profitability there is no inducement for development of new minerals mining (refer Iluka’s Inducement Analysis work in March 2010 Mineral Sands Briefing Paper, available on Iluka’s web site).

### Iluka and China

- China represents more than 40 per cent of global zircon consumption and will continue to grow more rapidly than other markets.
- Iluka's Shanghai office has now been extended to a regional office for all of Asia (with increasing staff levels).
- Increasing level of direct sales of products.
- Use of strategic mainland warehousing locations to better service customers.
- Firm plans to further expand Iluka's presence in China.
- Continued focus on improving our service to the Chinese market: reliability, convenience, streamlined supply chain, stronger relationships, communication.

### TZMI Presentations

- While Bemax has new supply this year, not a large number of projects to be commissioned, plus time to market for new projects may take longer than expected and commissioning may be longer than expected.
- New supply will fill the gap and perhaps lead to a short term excess but the worrying trend is that the 2.6 per cent annual compound supply (this is the historical figure and TZMI forecasts 3.8 per cent from 2012-2020) is "highly unlikely" to be matched to 2020 by new supply. TZMI see a "flat supply" equation.
- Short term surplus (although stated that there is "not currently a surplus") and some excess capacity expected but TZMI expects discipline on the part of the suppliers.
- Depending on demand growth, TZMI expects onset of a deficit in supply between 2012 and 2014.
- TZMI expects a potentially large deficit of zircon relative to demand (figures provided but not reproduced here) and there could be "upside" to their demand scenario.
- View that there has to be some substitution or replacement, especially for low value applications.
- A "large concern" is the rate of new project development.
- Zircon prices still to surpass the real level high in 1975.
- TZMI's analysis provided current bulk premium price in a range (figures provided but not reproduced here) with a similar pricing profile for Europe and China markets.
- Pointed out the variation in monthly pricing data - which may be up to US$300t/month due to quality as well as shipment sizes.
- Surprised at the level of shipments now occurring - either restocking or strong confidence in underlying demand - TZMI not specific which it may be.
- TZMI view that Q2 price increases of US$20-50 (their assessment) have been passed through.
- 2nd half price increase they expect to be of similar magnitude to the high end of this range (although a comment that TZMI was "hearing higher numbers.")
- TZMI's view is that price increases are justified.
- Provided forecast of 2010 exit prices (not reproduced here) although if the level of price increases being heard is the case, it could be higher than this estimate.
- Stated that it is a matter of when zircon prices increase above US$1,000/t - and it is their view that they would be above US$1,000/t now except for the GFC.
- TZMI commented on a continuing rising trend in prices over the next 5 years.
- The TZMI view on prices doesn't reflect demand (on which they stated they are "bullish") but supply and the fact that it will take a lot to effect a catch up in supply.
- TZMI showed a new low/base and high case forecast (not part of the handout material and Iluka will not reproduce here).

**For further information on the mineral sands sector refer to Iluka briefing papers on its website www.iluka.com**

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- exchange rate assumptions
- product pricing assumptions
- mine plans and/or resources
- equipment life or capability
- current or new technical challenges
- market conditions
- management decisions

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