



**ILUKA**

# Australian Securities Exchange Notice

16 October 2014

## AMENDMENT TO ASX RELEASE

In relation to the ASX Release titled "Quarterly Production Report 30 September 2014" dated 16 October 2014, Iluka advises that the figure in the first bullet point on Page 2 of the report has been amended.

On a year to date basis there has been no material change in the revenue per tonne of Z/R/SR sold (\$1,015 as reported at 30 June), reflecting the continuation of relatively stable weighted average prices received for both zircon and high grade titanium dioxide products. Prices received can vary depending on quality and volume of product sold, market segment sold into and point of sale.

An updated copy of the Quarterly Production Report 30 September 2014 is attached.

### Investment market and media inquiries:

Dr Robert Porter  
General Manager, Investor Relations  
Phone: + 61 (0) 3 9225 5008  
Mobile: +61 (0) 407 391 829  
Email: [robert.porter@iluka.com](mailto:robert.porter@iluka.com)

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16 October 2014

## QUARTERLY PRODUCTION REPORT 30 SEPTEMBER 2014

### SUMMARY OF PHYSICAL AND FINANCIAL DATA

	Sep-13 Quarter	Jun-14 Quarter	Sep-14 Quarter	Sep-13 YTD	Sep-14 YTD	Sep-14 YTD vs Sep-13 YTD
	kt	kt	kt	kt	kt	%
<b>Production</b>						
Zircon	98.1	96.2	99.4	216.6	273.4	26.2
Rutile	44.2	44.9	41.1	104.8	119.2	13.7
Synthetic Rutile	-	-	-	59.0	-	-
<b>Total Z/R/SR Production</b>	<b>142.3</b>	<b>141.1</b>	<b>140.5</b>	<b>380.4</b>	<b>392.6</b>	<b>3.2</b>
Ilmenite	134.2	116.6	73.8	468.1	300.6	(35.8)
<b>Total Mineral Sands Production<sup>1</sup></b>	<b>276.5</b>	<b>257.7</b>	<b>214.3</b>	<b>848.5</b>	<b>693.2</b>	<b>(18.3)</b>
Z/R/SR sales revenue A\$ million	130.0	186.6	134.4	468.4	415.7	(11.3)
Ilmenite and other revenue A\$ million	17.0	25.7	13.3	60.3	75.3	24.9
<b>Mineral Sands Revenue A\$ million</b>	<b>147.0</b>	<b>212.3</b>	<b>147.7</b>	<b>528.7</b>	<b>491.0</b>	<b>(7.1)</b>
<b>Average AUD:USD cents</b>	<b>91.6</b>	<b>93.2</b>	<b>92.7</b>	<b>98.1</b>	<b>91.9</b>	<b>(6.3)</b>

### OVERVIEW

- Iluka's combined production of zircon, rutile and synthetic rutile (Z/R/SR) in the September quarter was 140.5 thousand tonnes, similar to the September 2013 and June 2014 quarters.
- Combined Z/R/SR production on a year-to-date basis was 392.6 thousand tonnes, 3.2 per cent higher than the 380.4 thousand tonnes recorded for the same period in 2013.
- Mineral sands revenue for the three months to 30 September 2014 was \$147.7 million, similar to the September quarter 2013 level. Revenue on a year-to-date basis was \$491.0 million, compared with \$528.7 million in the same period in 2013, a 7.1 per cent decline, reflecting mix variance of product sales year-to-date, as well as lower received prices period on period, as conveyed in the half year results.
- Lower sales revenue in the September quarter 2014, compared with the June quarter, is attributable principally to the timing of bulk titanium dioxide shipments to customers, together with seasonally lower iron oxide by-product sales and lower received prices for ilmenite product to China. Zircon revenues in the third quarter were on trend with the previous quarter.

<sup>1</sup> Total mineral sands production includes ilmenite available for upgrading to synthetic rutile and ilmenite that is available for sale. For both commercial reasons and given the company's increased flexibility in utilising ilmenite production from multiple sources for upgrading to synthetic rutile, the company no longer separates ilmenite production into saleable and upgradeable components. The relative utilisation of ilmenite for upgrading or sale is more apparent with the reporting of sales volumes in the June and December quarterly reports.

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- On a year to date basis there has been no material change in the revenue per tonne of Z/R/SR sold (\$1,015 as reported at 30 June), reflecting the continuation of relatively stable weighted average prices received for both zircon and high grade titanium dioxide products. Prices received can vary depending on quality and volume of product sold, market segment sold into and point of sale.
- The average Australian/US dollar exchange rate for the quarter was 92.7 cents, down from 93.2 cents in the June quarter. The majority of Iluka's revenue is denominated in US dollars.
- There are no changes to any of Iluka's market guidance parameters (refer ASX Release dated 21 February 2014) and associated commentary about the shape of the sales profile for zircon and rutile remains intact. Iluka's production settings can be rapidly changed as required and based on market demand and other considerations.

## **MARKET CONDITIONS**

### **Zircon**

Overall, demand for zircon was stable in the third quarter of 2014, as were price outcomes achieved.

In China, an absence of government stimulus measures for the property sector during the quarter weighed on sentiment in the ceramics sector as the quarter progressed, with some customers electing to defer September volume into the fourth quarter. The most recent government actions to relax access to mortgages and a lower mortgage rate are reported to have improved housing affordability across a broad range of cities in China and may help customer confidence.

The smaller, but expanding, zirconium chemicals industry is experiencing a recovery in demand, with many major Chinese producers currently operating at capacity and benefiting sales of Iluka's standard grade zircon, which increased to this sector in the third quarter.

In Asian markets (ex-China), demand patterns were variable and generally subdued, although zircon sales into Japan were strong after an extended period of low demand.

The North American market, where demand predominantly reflects industrial and manufacturing activity has been robust, associated with United States industrial production strength.

As Iluka has advised previously, demand in Europe showed signs of recovery in the latter part of the June quarter, influenced predominately by demand from the export markets supplied by European ceramics producers, such as the Middle East and Brazil. This recovery continued into July and August influenced by improving end-market price dynamics.

### **Titanium Dioxide**

The conditions for demand recovery in high grade feedstock markets remained intact, particularly in the chloride pigment sector which accounts for the vast majority of Iluka's feedstock demand. Iluka's high grade ore sales for the quarter were consistent with expectations across all geographies and Iluka's high grade feedstock prices remained stable through the quarter.

North American pigment producers continue to run at higher capacity utilisation rates and there have been some positive downstream indicators in terms of architectural paint demand, as indicated by a major US paint retailer deciding to keep their stores open for an additional hour each day, a reported 18 month backlog for professional painting services, and by contractor availability shortages in the commercial sector.

European pigment demand has shown some signs of slowing as a result of economic slow-down in Germany and the rest of Europe; but this has not impacted Iluka's sales to this market.

Iluka is encouraged by the level of customer interest being shown in securing volume from a potential restart of synthetic rutile production. A decision to restart remains subject to completion of appropriate commercial arrangements.

Demand for titanium feedstocks to the welding industry, particularly Japan and Korea, has shown signs of improvement as the shipbuilding industry continues to experience increased demand. Recently a major welding customer reported their 2015 order book was already full and they would be running at capacity.

## PRODUCTION

Total zircon/rutile/synthetic rutile (Z/R/SR) production for the quarter was 140.5 thousand tonnes (third quarter 2013: 142.3 thousand tonnes), comprising 99.4 thousand tonnes of zircon and 41.1 thousand tonnes of rutile. No synthetic rutile was produced during the quarter.

Iluka's third quarter production settings were in line with the guidance provided on full year production (refer slide 14 of the 2013 Full Year Results slide presentation available on the Iluka website [www.iluka.com](http://www.iluka.com)). These production settings entail lower mineral separation plant utilisation than normal to reduce transport and operating costs and enable the progressive drawdown of finished goods inventory.

At the company's two Australian operating mines, Jacinth-Ambrosia in South Australia and Wornack, Rownack and Pirro (WRP) in Victoria, mining operations continued at full utilisation rates. These rates enable optimum unit cash cost outcomes for the production of heavy mineral concentrate (HMC), which in the case of WRP is planned to entail a build of HMC levels over 2014 and into 2015, to be drawn down following the completion of planned mining in the first half of 2015 and before the commencement of mining at the next planned mine development. During the quarter a higher than forecast ore grade at WRP resulted in additional HMC production and stock build, increasing the volume expected to be available for future drawdown and conversion to finished products, including rutile.

Iluka's mining operation in Western Australia, Tutunup South, remained idled associated with the idling of all synthetic rutile kilns in the State, as the company has previously advised. Activities are underway to prepare for a possible restart of mining at Tutunup South in January 2015 to produce and stockpile ilmenite in advance of a kiln restart.

In Virginia mining continued at Brink, with mining at Concord having been idled in April as planned. The mineral separation plant continued to be operated at a reduced capacity, in line with the plan to draw down finished goods inventory.

Appendix 1 shows physical movements on a year-to-date basis. In relation to heavy mineral concentrate (HMC) produced and that processed, the figures indicate an HMC build of approximately 295 thousand tonnes, mainly in the Murray Basin, in line with company's intention to process this material following completion of current mining operations.

## MINERAL SANDS PRODUCTION

The following table details Iluka's total production by product group, with the source of that production attributed to the regional operating mines and basins. Processing of final product occurs in Australia at one of two mineral separation plants at Hamilton, Victoria and Narngulu, Western Australia. Iluka also has a mineral separation plant in Virginia, United States. A similar table showing a 12 month comparison is on page 5. Given the integrated nature of Iluka's Australian operations, heavy mineral concentrate is capable of being processed into final product at either of the Australian mineral processing facilities. Appendix 1 provides details of the physical flows from mining operations to mineral processing facilities.

### Physical Production

	Sep-13 Quarter	Jun-14 Quarter	Sep-14 Quarter	Sep-13 YTD	Sep-14 YTD	Sep-14 YTD vs Sep-13 YTD
	kt	kt	kt	kt	kt	%
<b>Zircon<sup>1</sup></b>						
Eucla/Perth Basin (SAWA)	65.2	65.4	71.8	134.9	191.6	42.0
Murray Basin (VIC)	21.4	22.6	22.3	51.9	60.8	17.1
<b>Australia</b>	<b>86.6</b>	<b>88.0</b>	<b>94.1</b>	<b>186.8</b>	<b>252.4</b>	<b>35.1</b>
<b>Virginia (USA)</b>	<b>11.5</b>	<b>8.2</b>	<b>5.3</b>	<b>29.8</b>	<b>21.0</b>	<b>(29.5)</b>
<b>Total Zircon Production</b>	<b>98.1</b>	<b>96.2</b>	<b>99.4</b>	<b>216.6</b>	<b>273.4</b>	<b>26.2</b>
<b>Rutile</b>						
Eucla/Perth Basin (SAWA)	9.1	8.4	8.5	25.9	22.4	(13.5)
Murray Basin (VIC)	35.1	36.5	32.6	78.9	96.8	22.7
<b>Total Rutile Production</b>	<b>44.2</b>	<b>44.9</b>	<b>41.1</b>	<b>104.8</b>	<b>119.2</b>	<b>13.7</b>
<b>Synthetic Rutile (WA)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>59.0</b>	<b>-</b>	<b>-</b>
<b>TOTAL Z/R/SR PRODUCTION</b>	<b>142.3</b>	<b>141.1</b>	<b>140.5</b>	<b>380.4</b>	<b>392.6</b>	<b>3.2</b>
<b>Ilmenite</b>						
Eucla/Perth Basin (SAWA)	32.1	27.4	33.8	185.8	78.9	(57.5)
Murray Basin (VIC)	44.4	58.6	20.9	132.0	143.4	8.6
<b>Australia</b>	<b>76.5</b>	<b>86.0</b>	<b>54.7</b>	<b>317.8</b>	<b>222.3</b>	<b>(30.1)</b>
<b>Virginia (USA)</b>	<b>57.7</b>	<b>30.6</b>	<b>19.1</b>	<b>150.3</b>	<b>78.3</b>	<b>(47.9)</b>
<b>Total Ilmenite</b>	<b>134.2</b>	<b>116.6</b>	<b>73.8</b>	<b>468.1</b>	<b>300.6</b>	<b>(35.8)</b>
<b>TOTAL MINERAL SANDS PRODUCTION</b>	<b>276.5</b>	<b>257.7</b>	<b>214.3</b>	<b>848.5</b>	<b>693.2</b>	<b>(18.3)</b>

<sup>1</sup> Iluka's zircon production figures include small volumes of zircon attributable to external processing arrangements.

## Physical Production – 12 Month Comparison

	12 mths to Sep-13	12 mths to Sep-14	12 mths Sep-14 vs 12 mths Sep-13
	kt	kt	%
<b>Zircon</b>			
Eucla/Perth Basin (SAWA)	150.0	242.4	61.6
Murray Basin (VIC)	84.3	68.7	(18.5)
<b>Australia</b>	<b>234.3</b>	<b>311.1</b>	<b>32.8</b>
<b>Virginia (USA)</b>	<b>38.8</b>	<b>30.8</b>	<b>(20.6)</b>
<b>Total Zircon Production</b>	<b>273.1</b>	<b>341.9</b>	<b>25.2</b>
<b>Rutile</b>			
Eucla/Perth Basin (SAWA)	32.5	29.8	(8.3)
Murray Basin (VIC)	129.2	111.6	(13.6)
<b>Total Rutile Production</b>	<b>161.7</b>	<b>141.4</b>	<b>(12.6)</b>
<b>Synthetic Rutile (WA)</b>	<b>111.7</b>	<b>-</b>	<b>(100.0)</b>
<b>TOTAL Z/R/SR PRODUCTION</b>	<b>546.5</b>	<b>483.3</b>	<b>(11.6)</b>
<b>Ilmenite</b>			
Eucla/Perth Basin (SAWA)	239.2	104.3	(56.4)
Murray Basin (VIC)	149.0	195.1	30.9
<b>Australia</b>	<b>388.2</b>	<b>299.4</b>	<b>(22.9)</b>
<b>Virginia (USA)</b>	<b>195.7</b>	<b>117.6</b>	<b>(39.9)</b>
<b>Total Ilmenite</b>	<b>583.9</b>	<b>417.0</b>	<b>(28.6)</b>
<b>TOTAL MINERAL SANDS PRODUCTION</b>	<b>1,130.4</b>	<b>900.3</b>	<b>(20.4)</b>

## PLANNED NEW PRODUCTION

### Balranald, New South Wales

Balranald and Nepean are two rutile-rich mineral sands deposits in the northern Murray Basin, New South Wales. The Balranald development, if approved, would provide the potential for approximately eight years of rutile, zircon and associated ilmenite products. It is proposed that the Balranald development would follow the completion of mining at Woorneck, Rownack and Pirro and utilise the existing Hamilton mineral separation plant.

The planned activities associated with the definitive feasibility study continued, including the operation of an extensive hydrogeological pilot programme, to be followed by the detailed engineering required for project execution. Test work to better assess the proportion of the ilmenite from Balranald suitable for various downstream processing technologies continued during the quarter. Iluka also continued progress with all regulatory approvals.

Environmental approvals planning work continues as a precursor to the submission of an Environmental Impact Statement, currently planned for early 2015. The timing of the Balranald project remains subject to the results of the definitive feasibility study and environmental approvals.

### **Cataby, Western Australia**

The Cataby mineral sands deposit, located north of Perth, is a deposit that is expected to produce ilmenite suitable for sale, or as a feed source for synthetic rutile production, and material volumes of zircon, as well as rutile. Subject to study completion and approvals, Cataby has an economic life of an initial six years, which is potentially extendable.

Groundwater modelling and the conceptual design of the mining unit plant were completed during the quarter. Site layouts and general engineering were completed.

Cultural heritage surveys involving the indigenous native title claimant groups were completed during the period and a Voluntary Co-Operation Agreement has been executed.

### **Eucla Basin Satellite Deposits, South Australia**

Iluka has undertaken a scoping study on the Sonoran, Atacama and Typhoon satellite deposits in proximity to the Jacinth-Ambrosia operation in the Eucla Basin. The pre-feasibility study is underway and scheduled for completion in 2016.

Planned activities associated with this pre-feasibility study have continued, with the geometallurgical test work programme entering its final stages, and conceptual plant design and site layout work nearing completion. Various engineering work packages are being finalised. Field activities for the environmental base line studies in the Atacama region have commenced.

Resource delineation air core drilling commenced on the Atacama deposit with drill samples being collected for test work as part of ongoing feasibility studies (refer Exploration section).

### **Hickory, Virginia, United States of America**

The Hickory project is located in Dinwiddie County, Virginia, approximately 19 kilometres west of the existing Iluka Stony Creek mineral separation plant and includes unmined portions of the Old Hickory ore body. The Hickory project, if approved, would help extend the life of operations in Virginia by approximately six to ten years, producing high quality chloride grade ilmenite and an associated zircon production stream. Ore concentrated at Hickory would be trucked to the existing mineral separation plant at Stony Creek, Virginia for processing into final products.

A definitive feasibility study for the Hickory project has been completed. Subsequently, detailed engineering activities have been progressed, including infill drilling and ore sampling; additional mineral processing tests; detailed construction designs for the concentrator plant, mine, and tailings areas; bid documents preparation; acquisition of construction quotes; and securing of environmental and operating permits.

During the quarter work continued to focus on optimising mining, tailings and rehabilitation plans. As part of the optimisation process, a lower capex/lower annual production mine development option is also under consideration.

### **Aurelian Springs, North Carolina, United States of America**

The Aurelian Springs project involves a feasibility study for the potential development of a mineral sand deposit located in Halifax County, North Carolina, approximately 90 kilometres south of Iluka's mineral separation plant at Stony Creek, Virginia. The evaluation is based currently on the relocation of the Concord mining unit and concentrator plant to Aurelian Springs. The mine is capable of producing chloride ilmenite and an associated zircon production stream, and would extend the economic life of Iluka's current United States' mineral sands operation for approximately 10 years.

The pre-feasibility study was completed in 2013 in accordance to plan, and the project has progressed to the definitive feasibility stage which is currently being undertaken.

The definitive feasibility study work includes acquisition of the remaining land and mineral rights, securing of permits, detailing a work plan for relocation of the mine and concentrator, and developing a detailed cost estimate and schedule. During the quarter, further sample analysis and testing work, mineral separation plant upgrade design work and detailed engineering for the Concord concentrator plant relocation were progressed.

### **Puttalam, Sri Lanka**

In Sri Lanka, the focus was on gaining clarity with the Government in relation to the legal and investment terms for the development of the Puttalam project.

Refer Iluka's website ([www.iluka.com](http://www.iluka.com)) – Section: Company, Projects, for more detail on these projects.

## **EXPLORATION**

### **Eucla Basin, South Australia**

The Atacama, Sonoran and Typhoon deposits are located within proximity to the Jacinth-Ambrosia operation (see map below). As at 31 December 2013 the combined resources (variously at measured, indicated and inferred for the three deposits) were 161 million tonnes of material grading 8.4 per cent at between 6.3 per cent and 9.0 per cent and containing 13.4 million tonnes of HM, at a 3 per cent HM cut-off grade. This comprises a Measured Resource of 23.7 million tonnes of material grading 6.6 per cent HM containing 1.5 million tonnes of HM, an Indicated Resource of 27 million tonnes of material grading 7.2 per cent HM containing 1.9 million tonnes of HM and an Inferred resource of 111 million tonnes of material grading 9 per cent HM containing 10 million tonnes of HM. The deposits, when compared with the Jacinth and Ambrosia deposits, are more ilmenite dominated in terms of assemblage, with ilmenite assemblages between 62 per cent and 69 per cent and with zircon assemblage typically at or around the 14 per cent level.

These deposits have the potential to supplement or extend mining activities in the Eucla Basin, through the likely utilisation of existing infrastructure at Jacinth-Ambrosia. The company has commenced a pre-feasibility study for this purpose.

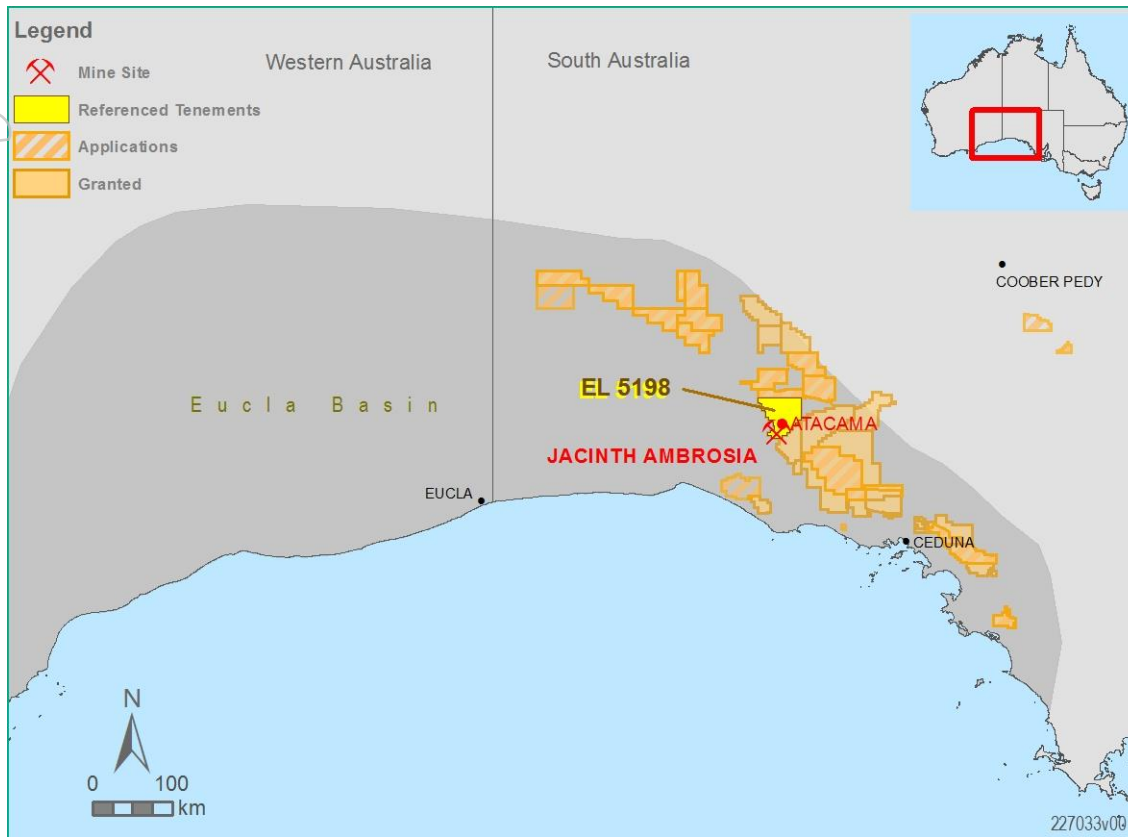
As part of this work, an extensive programme of resource delineation air core drilling has commenced on the Atacama deposit, with the aim of better defining the spatial location of the mineralisation and improving the confidence in the geological model for the deposit. Atacama is the largest of the three deposits with a current Inferred Resource of 110 million tonnes of material grading at 9 per cent heavy mineral (HM) and containing 9.9 million tonnes of HM at a 3 per cent lower HM cut-off.

The drilling, involving two contract drill rigs, is being undertaken on a surveyed grid at 400 metres x 50 metres over multiple strands within an area. The area of drilling encompasses approximately 5 kilometres in width and 12 kilometres in length. The drilling is expected to continue in the fourth quarter of 2014. Subsequent phases of drilling to support ongoing feasibility studies are planned in the second half of 2015.

To date, 781 holes for 38,987 metres have been completed and 37,673 samples collected for assaying. Encouraging visual HM mineralisation has been observed over multiple drill intersections. Final assay results will be available early in 2015.



**Figure 1 Eucla Basin Tenements and Atacama Drilling**



**Project Generation**

Iluka is continuing exploration activities (from initial prospecting and tenement acquisition to drilling activity) for mineral sands in several other areas in both Australia and at early stages in numerous international jurisdictions.

**Investment market and media enquiries:**

Dr Robert Porter  
General Manager, Investor Relations  
Phone: + 61 (0) 3 9225 5008  
Mobile: +61 (0) 407 391 829  
Email: [robert.porter@iluka.com](mailto:robert.porter@iluka.com)

**APPENDIX 1 - OPERATING MINES – PHYSICAL DATA**  
**9 Months to 30 September 2014**

	Jacinth- Ambrosia	Murray Basin	Western Australia	Australia Total	Virginia	Group Total
<b>Mining</b>						
Overburden Moved kbcm	1,103.1	12,228.2	-	13,331.3	-	13,331.3
Ore Mined kt	5,910.4	2,757.0	-	8,667.4	2,430.8	11,098.2
Ore Grade HM %	7.5	34.4	-	16.1	5.8	13.8
VHM Grade %	6.7	31.8	-	14.7	4.6	12.5
<b>Concentrating</b>						
HMC Produced kt	401.7	486.3	-	888.0	144.6	1,032.6
VHM Produced kt	357.9	434.6	-	792.5	103.7	896.2
VHM in HMC Assemblage %	89.1	89.4	-	89.2	71.7	86.8
Zircon	56.1	26.6	-	39.9	16.0	36.6
Rutile	6.6	39.5	-	24.6	-	21.2
Ilmenite	26.4	23.3	-	24.7	55.7	29.0
HMC Processed kt	340.5	246.7	6.3	593.5	143.3	736.8
Finished Product <sup>1</sup> kt						
Zircon	171.8	60.8	19.8	252.4	21.0	273.4
Rutile	22.3	96.8	0.1	119.2	-	119.2
Ilmenite	78.1	143.4	0.8	222.3	78.3	300.6
Synthetic Rutile Produced kt			-	-		-

An explanation of the Iluka's physical flow information can be obtained from Iluka's Briefing Paper - Iluka Physical Flow Information on the company's website [www.iluka.com](http://www.iluka.com), under Investor Relations, Mineral Sands Briefing Material, 2010. The nature of the Iluka operations base means that HMC from various mining locations can be processed at various mineral separation plants.

<sup>1</sup> Finished product includes material from heavy mineral concentrate (HMC) initially processed in prior periods.

## Explanatory Comments on Terminology

**Overburden moved** (bank cubic metres) refers to material moved to enable mining of an ore body.

**Ore mined** (thousands of tonnes) refers to material moved containing heavy mineral ore.

**Ore Grade HM %** refers to percentage of heavy mineral (HM) found in a deposit. In the case of Murray Basin it excludes grade attributable to low quality, unsaleable ilmenite some which is returned to the mine.

**VHM Grade %** refers to percentage of valuable heavy mineral (VHM) - titanium dioxide (rutile and ilmenite), and zircon found in a deposit.

**Concentrating** refers to the production of heavy mineral concentrate (HMC) through a wet concentrating process at the mine site, which is then transported for final processing into finished product at one of the company's two Australian mineral processing plants, or the Virginia mineral processing plant.

**HMC produced** refers to HMC, which includes the valuable heavy mineral concentrate (zircon, rutile, ilmenite) as well as other non-valuable heavy minerals (gangue).

**VHM produced** refers to an estimate of valuable heavy mineral in heavy mineral concentrate expected to be processed.

**VHM produced and the VHM assemblage** - provided to enable an indication of the valuable heavy mineral component in HMC.

**HMC processed** provides an indication of material emanating from each mining operation to be processed.

**Finished product** is provided as an indication of the finished production (zircon, rutile, ilmenite – both saleable and upgradeable) attributable to the VHM in HMC production streams from the various mining operations. Finished product levels are subject to recovery factors which can vary. The difference between the VHM produced and finished product reflects the recovery level by operation, as well as processing of finished material/concentrate in inventory. Ultimate finished product production (rutile, ilmenite, and zircon) is subject to recovery loss at the processing stage – this may be in the order of 10 per cent.

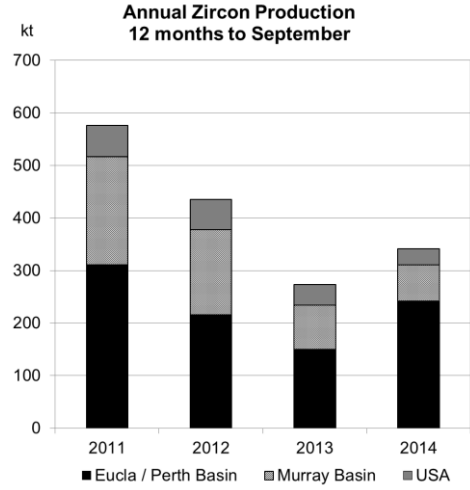
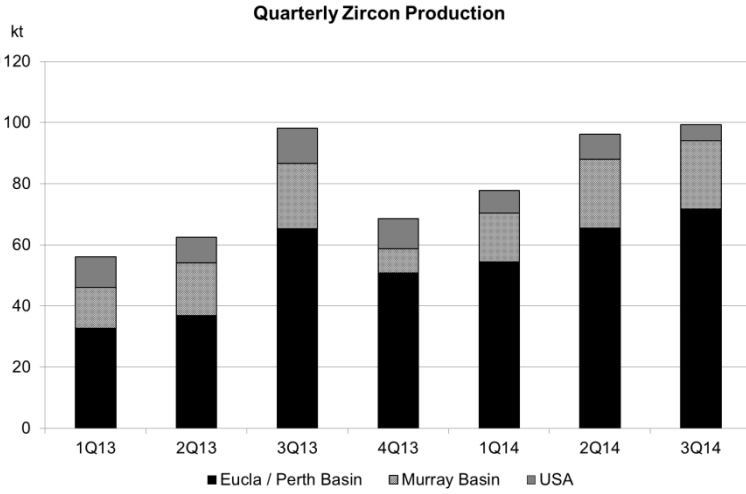
**Ilmenite** is produced for sale or as a feedstock for synthetic rutile production.

Typically, 1 tonne of upgradeable ilmenite will produce between 0.58 to 0.62 tonnes of SR. Iluka also purchases external ilmenite for its synthetic rutile production process.

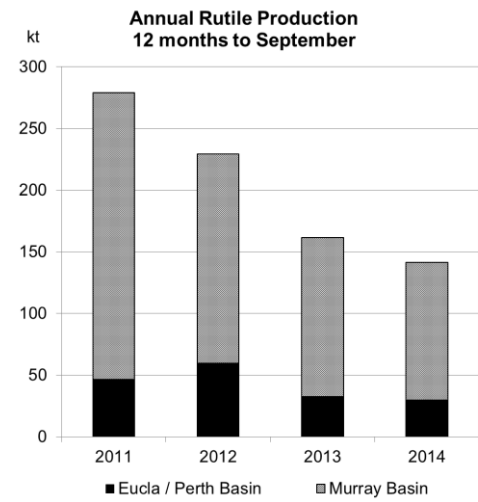
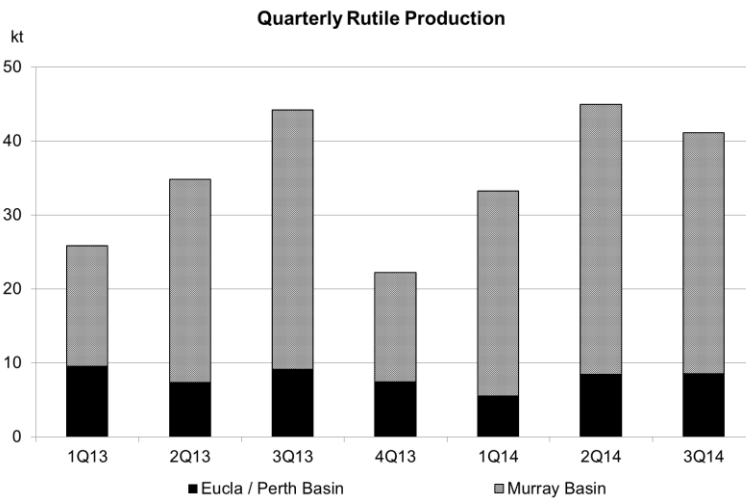
Refer Iluka's website [www.iluka.com](http://www.iluka.com) – Mineral Sands Technical Information for more detailed information on the mineral sands mining and production process.

## APPENDIX 2 – PRODUCTION SUMMARIES

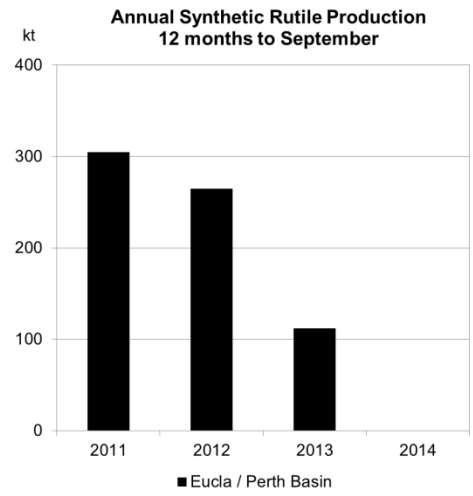
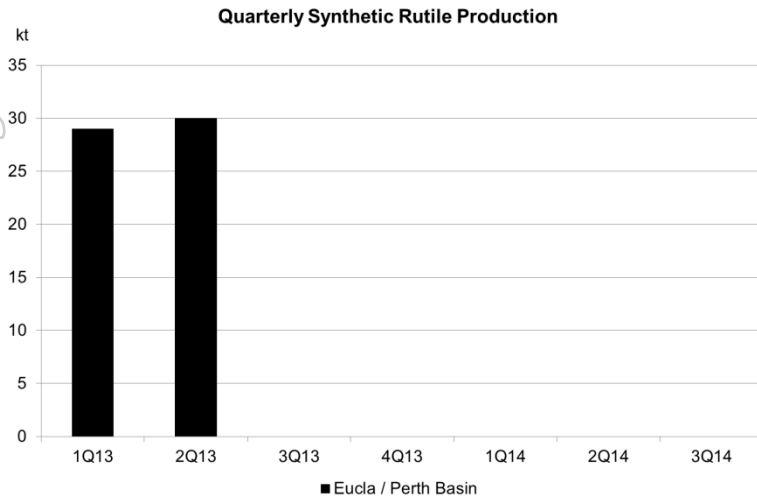
### Zircon



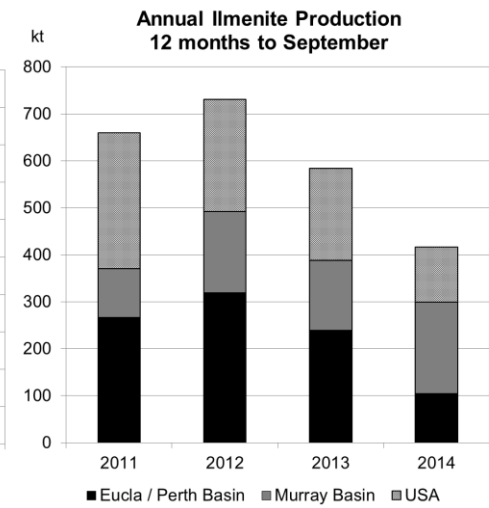
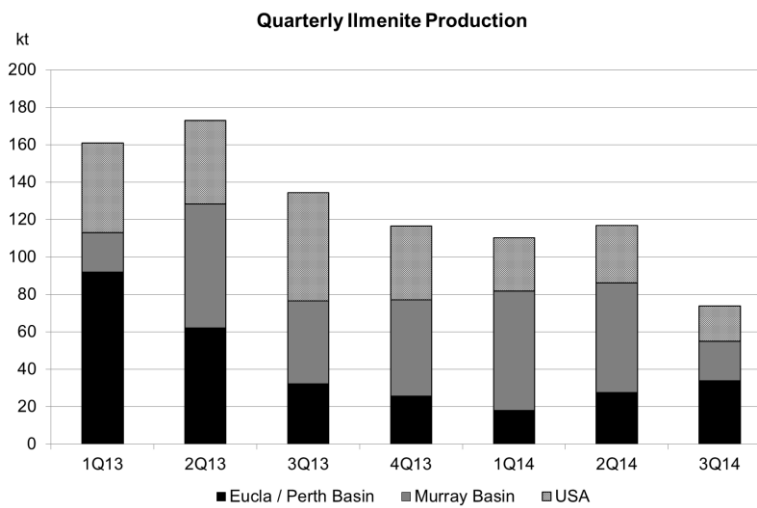
### Rutile



## Synthetic Rutile



## Ilmenite<sup>1</sup>



<sup>1</sup> Ilmenite is available for sale and also, in part, for upgrading, to synthetic rutile.