



# Australian Securities Exchange Notice

**ILUKA**

14 July 2016

## QUARTERLY PRODUCTION REPORT 30 JUNE 2016

### SUMMARY OF PHYSICAL AND FINANCIAL DATA

	Jun-15 Quarter	Mar-16 Quarter	Jun-16 Quarter	Jun-15 YTD	Jun-16 YTD	Jun-16 YTD vs Jun-15 YTD
	kt	Kt	kt	kt	kt	%
<b>Production</b>						
Zircon	97.6	74.2	101.3	163.3	175.5	7.5
Rutile	35.9	25.3	31.4	56.2	56.7	0.9
Synthetic Rutile	55.8	52.4	49.8	57.4	102.2	78.0
<b>Total Z/R/SR Production</b>	<b>189.3</b>	<b>151.9</b>	<b>182.5</b>	<b>276.9</b>	<b>334.4</b>	<b>20.8</b>
Ilmenite	115.5	81.3	82.8	195.1	164.1	(15.9)
<b>Total Mineral Sands Production<sup>1</sup></b>	<b>304.8</b>	<b>233.2</b>	<b>265.3</b>	<b>472.0</b>	<b>498.5</b>	<b>5.6</b>
<b>Sales</b>						
Zircon				153.4	154.5	0.7
Rutile				59.1	57.4	(2.9)
Synthetic Rutile				63.4	104.5	64.8
<b>Total Z/R/SR Sales</b>				<b>275.9</b>	<b>316.4</b>	<b>14.7</b>
Ilmenite				159.5	17.7	(88.9)
<b>Total Mineral Sands Sales</b>				<b>435.4</b>	<b>334.1</b>	<b>(23.3)</b>
Z/R/SR revenue \$ million	212.6	93.5	227.6	311.7	321.1	3.0
Ilmenite and other revenue \$ million <sup>2</sup>	21.8	8.6	8.8	37.9	17.3	(54.4)
<b>Mineral Sands Revenue \$ million</b>	<b>234.4</b>	<b>102.1</b>	<b>236.4</b>	<b>349.6</b>	<b>338.4</b>	<b>(3.2)</b>
<b>Cash Cost of Production per tonne of Z/R/SR \$</b>				<b>616</b>	<b>402</b>	<b>(34.7)</b>
<b>Revenue per Tonne of Z/R/SR Sold \$</b>	<b>1,105</b>	<b>1,066</b>	<b>995</b>	<b>1,130</b>	<b>1,015</b>	<b>(10.2)</b>

All currency is Australian dollar denominated unless otherwise indicated. Iluka does not report quarterly sales volumes.

### OVERVIEW

- Production of zircon/rutile/synthetic rutile (Z/R/SR) at 334 thousand tonnes is in line with Iluka's full year production guidance of ~660 thousand tonnes.
- First half production is higher than sales, given sales volumes are expected to be second half weighted.
- Iluka's total higher value product sales of Z/R/SR of 316 thousand tonnes represent a 14.7 per cent increase from the first half of 2015, with higher aggregate high grade chloride feedstock sales, especially

<sup>1</sup> Total mineral sands production includes ilmenite available for upgrading to synthetic rutile and ilmenite that is available for sale reports. 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 does not separate ilmenite production into saleable and upgradeable components.

<sup>2</sup> Ilmenite and other revenue include revenues derived from other materials not included in production volumes, including activated carbon products and iron concentrate. Iluka receives a royalty payment from its Mining Area C iron ore royalty. This is not reported as part of quarterly reports but is disclosed in the financial statements.

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of synthetic rutile, up 64.8 per cent. Rutile sales were in line with 2015, reflecting Iluka's approach to allocating volumes, while zircon sales were also similar to the first half of 2015.

- Combined rutile and synthetic rutile sales in the first half of 2016 were 32.2 per cent higher than the first half of 2015.
- Z/R/SR sales revenue increased by 3.0 per cent, associated with higher sales volumes, although largely offset by lower received US dollar prices for zircon period-on-period and a greater weighting in the sales mix to synthetic rutile.
- Total mineral sands revenue, which includes ilmenite and by-products, decreased by 3.2 per cent to \$338 million (2015: \$350 million), largely associated with lower ilmenite sales. This reflects use of internal ilmenite instead for upgrading to synthetic rutile and the phasing of planned chloride ilmenite sales to the second half of 2016.
- While unit revenue per tonne at A\$1,015 for Z/R/SR was 10.2 per cent lower than 2015, reflecting price and mix of products, both Iluka's unit cash cost per tonne of Z/R/SR production and unit cost of goods sold decreased, by 34.7 per cent to \$402/tonne and 12.7 per cent to \$717/tonne respectively, maintaining margin realisation.
- Overall cash cost of production, which includes ilmenite concentrate and by-product costs (the latter mainly activated carbon and iron concentrate) declined by 19.8 per cent period-on-period to \$140.7 million (2015: \$175.5 million).
- During the half, Iluka produced 244 thousand tonnes of HMC, with 60 per cent of this associated with mining and concentrating activities at Jacinth-Ambrosia, until their suspension in April. HMC processed for the half was 497 thousand tonnes of which 70 per cent was from Jacinth-Ambrosia and the Murray Basin where mining activities are not occurring. This draw down in HMC inventory is consistent with Iluka's production settings and approach, which are likely to see HMC and finished goods inventories normalise within the next two years.
- Iluka has seen highly encouraging trends in terms of demand for high grade feedstock, including several customers bringing forward contracted volume. This is a positive indicator in terms of the potential for additional volumes in the second half and in terms of conditions leading into 2017.
- Zircon demand overall has remained consistent with 2015 levels and slightly ahead of Iluka's first half expectations. Iluka has advised customers of a US\$60/tonne increase in the Zircon Reference Price (which is a "delivered ex China warehouse" price) effective from 1 July. Some additional time in the third quarter will be required to elapse to determine whether and to what extent this price increase is realised.
- Iluka progressed the Balranald definitive feasibility study, with the evaluation of the conventional development route nearing completion. The Cataby deposit remains at an execute-ready stage, with further capital reduction initiatives over the period. The emerging more favourable trends in the pigment and high grade feedstock market are a positive backdrop to the consideration of the development timing for these deposits.

## SUMMARY CASH COST AND REVENUE PER TONNE DATA

	Jun-15 Quarter	Mar-16 Quarter	Jun-16 Quarter	Jun-15 YTD	Jun-16 YTD	Jun-16 YTD vs Jun-15 YTD %
Production Cash Costs Z/R/SR \$ million (excluding ilmenite and by-products)				170.5	134.5	(21.1)
Ilmenite concentrate and by-product costs \$ million				5.0	6.2	24.0
<b>Total Cash Costs of Production \$ million</b>				<b>175.5</b>	<b>140.7</b>	<b>(19.8)</b>
<b>Unit Cash Prod Costs per tonne of Z/R/SR Produced \$ (excluding ilmenite and by- products)</b>				616	402	(34.7)
Unit Cash Prod Costs per tonne of Z/R/SR Produced \$ (including ilmenite and by- products)				634	421	(33.6)
<b>Unit Cost of Goods Sold per tonne of Z/R/SR Sold \$</b>				<b>821</b>	<b>717</b>	<b>(12.7)</b>
<b>Revenue per Tonne of Z/R/SR Sold \$</b>	<b>1,105</b>	<b>1,066</b>	<b>995</b>	<b>1,130</b>	<b>1,015</b>	<b>(10.2)</b>
<b>Average AUD:USD cents</b>	<b>77.8</b>	<b>72.1</b>	<b>74.6</b>	<b>78.3</b>	<b>73.4</b>	<b>(6.3)</b>

All currency is Australian dollar denominated unless otherwise indicated. Refer Iluka Briefing Paper, Modelling Methodology, June 2016, for information on modelling inventory and COGS through P&L.

## PRODUCTION

Total Z/R/SR production for the half was 334 thousand tonnes (first half 2015: 277 thousand tonnes).

Synthetic rutile volumes increased by 78 per cent reflecting a full half of synthetic rutile production, following the restart of the synthetic rutile (SR) 2 kiln in March 2015. Production of rutile has been moderated in light of Iluka's approach to allocating volumes of this product, given the progressive draw down of rutile-rich heavy mineral concentrate (HMC) in the Murray Basin ahead of the next planned mine development, Balranald.

Higher zircon production in the first half of 2016 compared with 2015 reflects mineral separation plant (MSP) campaign timing which effectively means higher operational run rate for MSPs in the first half of 2016, compared with the first half of 2015. In 2015, zircon production was notably second half weighted.

Relative to the previous quarter, there have been no fundamental changes to production settings, as previously advised. Mining and concentrating activities at Jacinth-Ambrosia were suspended in mid-April as announced on 16 February 2016, to allow the progressive draw down of HMC stockpiles held at site. Iluka expects the period of mining and concentrating suspension to be for 18 to 24 months (from April 2016), dependent on market demand.

Jacinth-Ambrosia HMC is processed at both the Hamilton (Victoria) and Narngulu (Western Australia) mineral separation plants (MSP); and mining continues at Tutunup South in Western Australia, as a source of the ilmenite feed for SR 2 kiln. In the Murray Basin, mining was completed at the Wornack, Rownack, Pirro (WRP) deposits in March 2015. Stockpiled HMC from WRP and a proportion of HMC from Jacinth-Ambrosia in South Australia continued to be blended into the Hamilton MSP. Both the Hamilton and Narngulu MSPs are running at ~50 to ~60 per cent of capacity.

## MINERAL SANDS MARKETS

Iluka's total Z/R/SR sales for the first half of 2016 were 14.7 per cent higher than the first half of 2015 as stronger demand conditions within the chloride pigment sector flowed through to demand for high grade titanium dioxide feedstocks, positively impacting the timing of synthetic rutile sales. Zircon sales were in line year-on-year and slightly exceeded Iluka's first half budgetary expectations.

### Zircon

Iluka advised customers in May that the company would be seeking an increase in its Zircon Reference Price in the third quarter of US\$60/tonne to ~US\$1,010/tonne ("delivered ex China warehouse"). The company is monitoring the response to this increase during the third quarter. The Reference Price is the benchmark against which all of Iluka's zircon products are priced. Iluka's weighted average received price can vary from this, reflecting product and customer mix as well as commercial arrangements for specific customers.

The sales mix in the first half was approximately 47 per cent premium product, 40 per cent standard/universal grade with the remainder of zircon sold contained in concentrate. This reflects a higher level of standard/universal grade product than in the first half of 2015, reflecting demand characteristics in various end sectors, as well as introduction of new Iluka zircon products. The sale of zircon concentrate reflects Iluka's efforts to monetise material from historical processing operations, an activity that is expected to be largely completed during 2016. In June the company had numerous requests to pull volume forward to the first half but has been disciplined in terms of supplying based on assessed underlying customer requirements, which is consistent with its goal of balancing customers' needs and supporting volume/price targets in the third quarter. As the company has indicated previously, it considers greater stability and predictability in the zircon price path to be beneficial for the entire value chain.

The following factors influenced demand in the second quarter of 2016:

#### China

- Demand within the ceramics sector has been stable and growth continues to be evident in the sanitary ware markets. However, financial weakness of smaller consumers who are more exposed to tightening of credit (both millers of zircon and downstream tile producers) has continued to weigh on sentiment.

The company is of the view this is the start of much needed consolidation in the sector which will lead to improved industry dynamics in the longer term.

- As is typical in an industry characterised by shifts in fashion and quality expectation, ceramics product inventory downstream of Iluka's customers is evident, although it is difficult to determine the impact, if any, this is having on demand for zircon and zircon based inputs.
- Weak demand continued in the zirconium oxy chloride (ZOC) market, of which China is the largest market participant. This sector produces a range of chemical based inputs for industrial, personal care and specialised uses. Overcapacity and weak export markets continues to weigh on this sector which typically accounts for about 15 per cent of zircon demand. Although not a significant market for Iluka, the company's competitors have sought to place volumes in other sectors, to compensate for the downturn in demand from this sector.

#### North America

- End demand for refractory and foundry applications continued to be subdued associated with the downturn in the steel, oil and gas industries. This factor, the idling of Iluka's Virginia mining operations and, as previously advised, competitive supply arrangements by other producers, have reduced Iluka's market share in this market.

#### Europe

- A more favourable demand environment was evident in Europe in the quarter as Italian and Spanish ceramics producers increased production in response to improving domestic and export markets. The deferment of some large middle-eastern infrastructure projects during the quarter moderated the otherwise positive sentiment.

#### India

- While representing relatively small tonnages, sales trends in India were positive. Reduction of some foreign ceramic dumping activities and lower gas prices coupled with changes in manufacturing techniques (a move to both higher zircon content double charged tiles and an increase in the penetration of digitally printed tiles) are all positive factors in this growing market.

### High Grade Titanium Dioxide

Iluka's expectations of pigment demand growth in the first quarter of 2016, and continued growth into the second quarter, appear to have played out with increased sales volumes being reported by pigment companies in Europe, Asia, India, North America and China.

After almost four years of "leaning out" in the supply chain, re-stocking by paint and pigment producers is underway. The increase in pigment end demand coupled with restocking activities is now increasing demand for titanium feedstocks as evidenced by seaborne trade and, in Iluka's case, some customers pulling forward planned shipments from later in the year to the first half. Dependent on trends over the next few months, this could result in additional sales if customers requesting material now experience gaps in their feedstock requirements in the second half of the year. In any event, it appears that the dynamics entering 2017 should be positive.

In relation to rutile volumes, Iluka continues to allocate volumes to maximise the NPV of the limited material the company has available from concentrate and finished goods inventory, following the cessation of mining at Woorack, Rownack, Pirro in Victoria in the first quarter of 2015. While there remains some limited oversupply of high grade feedstocks, this is fast reducing. As pigment plant operating rates ramp-up, Iluka expects the demand for rutile and other high grade products, such as premium grade synthetic rutile, to increase commensurately. The majority of Iluka's synthetic rutile production is contracted and the company expects to end the second half of 2016 with limited stock.

## Mineral Sands Weighted Average Received Prices

The following table provides weighted average received prices for Iluka's main products over the last three half year periods. The Iluka Review, available at [www.iluka.com](http://www.iluka.com) contains historical mineral sands price information.

	1 <sup>st</sup> Half 2015	2 <sup>nd</sup> Half 2015	1 <sup>st</sup> Half 2016
Weighted Average Price US\$/tonne FOB			
Zircon Premium and Standard	1,014	962	812
Zircon (all products, including concentrate and tailings material)	1,000	928	787
Rutile (includes all rutile products, including HyTi)	748	707	712
Synthetic rutile	Refer Note 1	Refer Note1	Refer Note1

Note 1: Iluka's synthetic rutile sales are, in large part, underpinned by commercial off take arrangements. The terms of these arrangements, including the pricing arrangements are commercial in confidence and as such not disclosed by Iluka. Synthetic rutile, due to its lower titanium dioxide content than rutile, typically is priced lower than natural rutile.

Zircon prices reflect the weighted average price for zircon premium and zircon standard, also with a weighted average price for all zircon materials, including zircon in concentrate and zircon tailings. The prices for each product vary considerably, as does the mix of such products sold period to period. For example, Iluka sold more zircon standard and zircon in concentrate in the second half of 2015 compared with the first half of 2015 and more in 2015 than 2014. In the first half of 2016, Iluka sold a higher proportion of standard product compared to premium product, relative to the first half of 2015. In the case of rutile, Iluka sells a lower titanium dioxide product, HyTi.

Refer Iluka Briefing Paper, [Iluka Zircon Products & Pricing Briefing Paper](#) for further information.

## GROUP 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 at Stony Creek in Virginia, United States (currently idled). A similar table showing a 12 month comparison is on page 7. 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.

### PRODUCTION

	Jun-15 Quarter	Mar-16 Quarter	Jun-16 Quarter	Jun-15 YTD	Jun-16 YTD	Jun-16 YTD vs Jun-15 YTD
	kt	kt	kt	kt	kt	%
<b>Zircon<sup>1</sup></b>						
Eucla/Perth Basin (SAWA)	74.7	64.4	90.6	123.7	155.0	25.3
Murray Basin (VIC)	15.1	9.8	10.7	22.7	20.5	(9.7)
<b>Australia</b>	<b>89.8</b>	<b>74.2</b>	<b>101.3</b>	<b>146.4</b>	<b>175.5</b>	<b>19.9</b>
Virginia (USA)	7.8	-	-	16.9	-	n/a
<b>Total Zircon Production</b>	<b>97.6</b>	<b>74.2</b>	<b>101.3</b>	<b>163.3</b>	<b>175.5</b>	<b>7.5</b>
<b>Rutile</b>						
Eucla/Perth Basin (SAWA)	9.0	8.5	15.4	16.3	23.9	46.6
Murray Basin (VIC)	26.9	16.8	16.0	39.9	32.8	(17.8)
<b>Total Rutile Production</b>	<b>35.9</b>	<b>25.3</b>	<b>31.4</b>	<b>56.2</b>	<b>56.7</b>	<b>0.9</b>
<b>Synthetic Rutile (WA)</b>	<b>55.8</b>	<b>52.4</b>	<b>49.8</b>	<b>57.4</b>	<b>102.2</b>	<b>78.0</b>
<b>TOTAL Z/R/SR PRODUCTION</b>	<b>189.3</b>	<b>151.9</b>	<b>182.5</b>	<b>276.9</b>	<b>334.4</b>	<b>20.8</b>
<b>Ilmenite – Saleable &amp; Upgradeable</b>						
Eucla/Perth Basin (SAWA)	67.9	72.1	72.2	103.1	144.3	40.0
Murray Basin (VIC)	16.6	9.2	10.6	25.8	19.8	(23.3)
<b>Australia</b>	<b>84.5</b>	<b>81.3</b>	<b>82.8</b>	<b>128.9</b>	<b>164.1</b>	<b>27.3</b>
Virginia (USA)	31.0	-	-	66.2	-	n/a
<b>Total Ilmenite – Saleable &amp; Upgradeable</b>	<b>115.5</b>	<b>81.3</b>	<b>82.8</b>	<b>195.1</b>	<b>164.1</b>	<b>(15.9)</b>
<b>TOTAL MINERAL SANDS PRODUCTION</b>	<b>304.8</b>	<b>233.2</b>	<b>265.3</b>	<b>472.0</b>	<b>498.5</b>	<b>5.6</b>

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

## PRODUCTION – 12 MONTH COMPARISON

	12 mths to Jun-15	12 mths to Jun-16	12 mths Jun-16 vs 12 mths Jun-15
	kt	kt	%
<b>Zircon</b>			
Eucla/Perth Basin (SAWA)	243.4	328.2	34.8
Murray Basin (VIC)	77.2	52.2	(32.4)
<b>Australia</b>	<b>320.6</b>	<b>380.4</b>	<b>18.7</b>
<b>Virginia (USA)</b>	<b>26.4</b>	<b>20.3</b>	<b>(23.1)</b>
<b>Total Zircon Production</b>	<b>347.0</b>	<b>400.7</b>	<b>15.5</b>
<b>Rutile</b>			
Eucla/Perth Basin (SAWA)	32.0	47.5	48.4
Murray Basin (VIC)	123.2	89.4	(27.4)
<b>Total Rutile Production</b>	<b>155.2</b>	<b>136.9</b>	<b>(11.8)</b>
<b>Synthetic Rutile (WA)</b>	<b>57.4</b>	<b>209.8</b>	<b>265.5</b>
<b>TOTAL Z/R/SR PRODUCTION</b>	<b>559.6</b>	<b>747.4</b>	<b>33.6</b>
<b>Ilmenite – Saleable &amp; Upgradeable</b>			
Eucla/Perth Basin (SAWA)	160.6	272.3	69.6
Murray Basin (VIC)	71.3	83.9	17.7
<b>Australia</b>	<b>231.9</b>	<b>356.2</b>	<b>53.6</b>
<b>Virginia (USA)</b>	<b>101.8</b>	<b>78.9</b>	<b>(22.5)</b>
<b>Total Ilmenite –Saleable &amp; Upgradeable</b>	<b>333.8</b>	<b>435.1</b>	<b>30.3</b>
<b>TOTAL MINERAL SANDS PRODUCTION</b>	<b>893.4</b>	<b>1,182.5</b>	<b>32.4</b>

## PLANNED NEW PRODUCTION

### Balranald, Murray Basin, 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, will provide the potential for approximately eight years of substantial rutile, zircon and associated ilmenite production. It is planned that the Balranald development will utilise the Hamilton mineral separation plant, in Victoria.

Activities associated with the definitive feasibility study for a conventional development approach, as at the end of June, were nearing completion. The definitive feasibility study has included assessment of conventional mine development options, with detailed work undertaken on a cross pit stacker concept. Associated work has included dewatering to ore requirements with hydrogeological modelling and testing. Mining and material movement optimisation studies have been completed and site infrastructure requirements determined. The generation of bulk samples of ilmenite from Balranald suitable for various downstream processing technologies, including synthetic rutile, has been completed and final assessments are being undertaken. New South Wales State Government Environmental Impact Statement (EIS) approval has been achieved and as part of this there is an allowance for site activities to undertake field tests for bulk sample recovery. This facilitates field test work in relation to an innovative solution to certain mineral sands mining and processing technical challenges. Iluka expects to be in a position to provide further information on this work following the completion of current trial work in the third quarter. Commonwealth EIS approvals are in train. The timing of the Balranald project remains subject to the final results of the definitive feasibility study, environmental and other approvals and economic and market conditions.



### **Cataby, Western Australia**

The Cataby mineral sands deposit, located north of Perth, is a deposit that is planned to produce ilmenite suitable for sale, or as a feed source for synthetic rutile production, as well as material volumes of zircon and rutile. Cataby is expected to have an economic life of approximately 8.5 years.

The definitive feasibility study has been completed and various pre-execute activities including environmental approvals and amenity agreements continue on schedule, along with work to further refine and optimise the project configuration. A development decision on Cataby is linked to planning for the continuation of Iluka's SR 2 kiln as well as high grade feedstock market demand conditions.

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

Iluka has undertaken a scoping study on the Sonoran, Atacama and Typhoon satellite deposits located in proximity to the Jacinth-Ambrosia operation in the Eucla Basin. The pre-feasibility study has been completed on Sonoran and Typhoon. Geological analysis and modelling has been completed with the resource model updated.

No further work is anticipated in the near future in relation to these projects, with the recommencement of further evaluation to be based on mine scheduling requirements linked to the company's corporate planning process which, in turn, is influenced by market supply and demand requirements for various products. Reporting on these deposits will now cease.

### **Puttalam (PQ), Sri Lanka**

The potential for the development of the mineral sands deposit known as the Puttalam Quarry (PQ) is currently being assessed. The PQ deposit is a large sulphate ilmenite deposit, located approximately 30 kilometres north of the town of Puttalam in the North Western Province of Sri Lanka, approximately 170 kilometres from the capital Colombo. PQ project work remains focussed on negotiations with government authorities in relation to legal and investment terms for the development and includes a pre-feasibility study being undertaken on a limited number of work packages relating to pre-mining or baseline conditions of the PQ deposit.

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

## **EXPLORATION**

### **Carnarvon, Western Australia**

Iluka completed assessment of geological observations and laboratory results from samples taken on E090/2034 (Figure 1). Subsequently, Iluka withdrew from the related Farm-In and Exploration Joint Venture Agreement between Iluka and Meehan Minerals Pty Ltd on 10 June 2016.

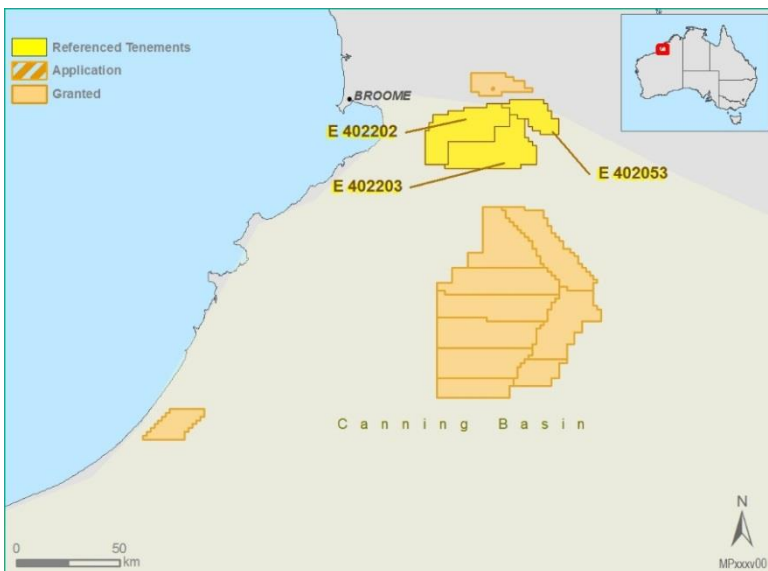
### **Canning Basin, Western Australia**

Iluka commenced drilling in the Canning Basin on 15 June 2016 (E40/2053, E40/2202 and E40/2203) (Figure 2). To the end of June, 24 air-core holes were drilled for 1,787 metres. Drilling has intercepted the host Cretaceous Broome Sandstone in most holes. The drilling has established that this sediment is largely unconsolidated and consists of very fine to medium grained, well sorted sands with low to medium grade HM mineralisation (estimates only). Iluka's approach is targeting coarser grained sand, given the greater efficacy in processing and market application than fine-grained mineral. As such the HM grade, grain size and mineralogical characteristics will be further defined by laboratory testing in the September quarter. The regional drilling program is expected to conclude in August.

**Figure 1 Carnarvon Basin, Western Australia**



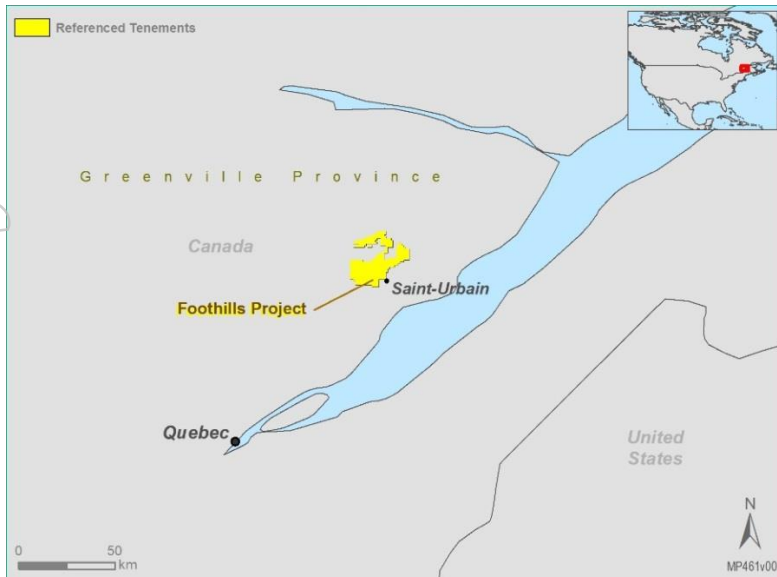
**Figure 2 Canning Basin, Western Australia**



**Foothills Project, Quebec, Canada**

In the second quarter Iluka funded Société d'Exploration Minière Vior Inc. (Vior) to complete geophysical surveys and geological mapping at the Foothills ilmenite-rutile project (Figure 3). Both activities will continue into the third quarter and results will be interpreted to prioritise regional scale targets. Under the Option and Joint Venture Agreement Iluka is required to fund A\$0.4 million in year one to be eligible to earn 51 per cent of the project and establish a Joint Venture, or withdraw. A further A\$2.1 million expenditure over another two years will enable Iluka to earn a 90 per cent interest in the Joint Venture.

**Figure 3 Foothills Project, Quebec, Canada**



### Project Generation

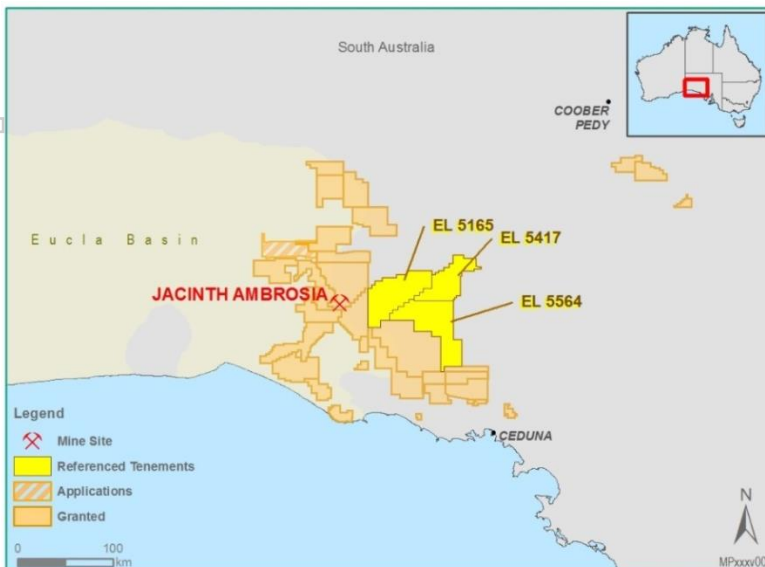
Iluka is continuing exploration activities, from initial prospecting and tenement acquisition to drilling activity for mineral sands, in several areas in both Australia and at early stages in six international jurisdictions.

During the quarter, Iluka prepared for second phase aerial geophysics in Kazakhstan for mineral sands targets within the country. This will be followed up with drilling during the second half of 2016, if suitable anomalies are found.

### Exploration – New Commodities

Iluka continues to assess non mineral sands prospectivity on its tenements and also to evaluate other proximate opportunities. Iluka completed air-core exploration drilling at the nickel sulphide focussed Fowler Project (EL 5165, EL 5417 and EL 5564), located south east of Jacinth-Ambrosia (Figure 4). A total of 45 holes for 2,265 metres of drilling were completed with several interpreted mafic and ultramafic intrusions intersected. Several intrusions were prioritised and tested with targeted geophysical surveys. Results will be compiled in the third quarter.

**Figure 4 Fowler Project, Eucla Basin, South Australia**



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**APPENDIX 1 - OPERATING MINES – PHYSICAL DATA**  
**6 Months to 30 June 2016**

	Jacynth- Ambrosia	Murray Basin	Western Australia	Australia Total	Virginia	Group Total
<b>Mining</b>						
Overburden Moved kbcm	429	-	199	628	-	<b>628</b>
Ore Mined kt	2,497	-	987	3,484	-	<b>3,484</b>
Ore Grade HM %	6.2	-	10.1	7.3	-	<b>7.3</b>
VHM Grade %	5.5	-	9.0	6.5	-	<b>6.5</b>
<b>Concentrating</b>						
HMC Produced kt	144	-	100	244	-	<b>244</b>
VHM Produced kt	127	-	87	214	-	<b>214</b>
VHM in HMC Assemblage %	88.2	-	86.7	87.6	-	<b>87.6</b>
Zircon	57.9	-	15.3	40.4	-	<b>40.4</b>
Rutile	6.4	-	5.8	6.1	-	<b>6.1</b>
Ilmenite - Saleable & Upgradeable	23.9	-	65.6	41.0	-	<b>41.0</b>
<b>Processing (HMC to finished product at a mineral separation plant)</b>						
HMC Processed kt	256	87	154	497	-	<b>497</b>
Finished Product <sup>1</sup> kt						
Zircon	135.3	20.5	19.7	175.5	-	<b>175.5</b>
Rutile	19.2	32.8	4.7	56.7	-	<b>56.7</b>
Ilmenite - Saleable & Upgradeable	55.5	19.8	88.8	164.1	-	<b>164.1</b>
Synthetic Rutile Produced kt			102.2	102.2		<b>102.2</b>

An explanation of Iluka's physical flow information can be obtained [from Iluka's Briefing Paper – Iluka Physical Flow Information, October 2010](#), on the company's website. The nature of the Iluka operations base means that HMC from various mining locations can be processed at various mineral separation plants.

**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.

**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** provides 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.

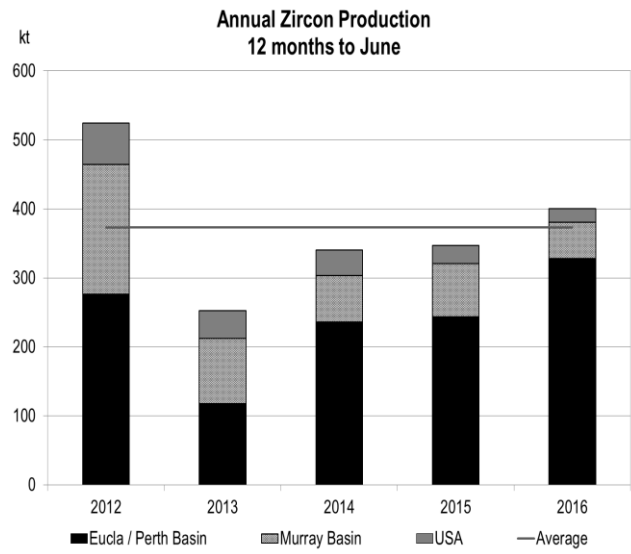
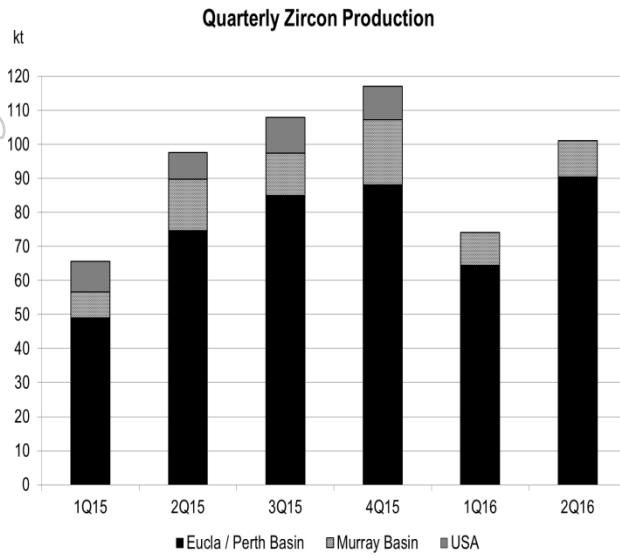
**Ilmenite** is produced for sale or as a feedstock for synthetic rutile production.

Typically, 1 tonne of upgradeable ilmenite will produce between 0.56 to 0.60 tonnes of SR. Iluka also purchases external ilmenite for its synthetic rutile production process.

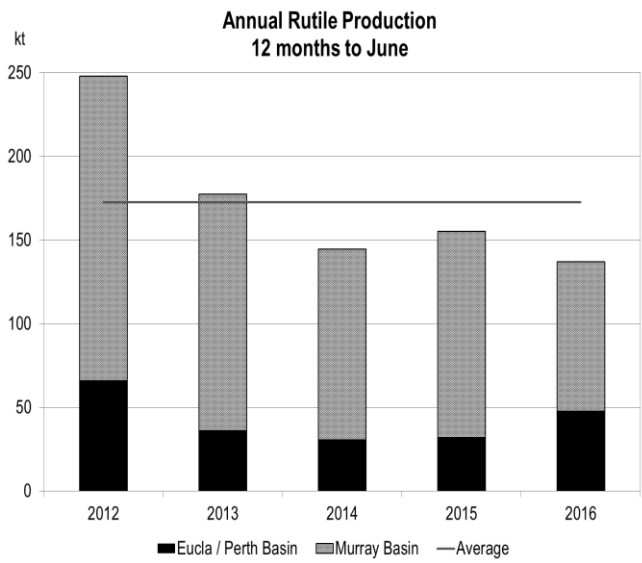
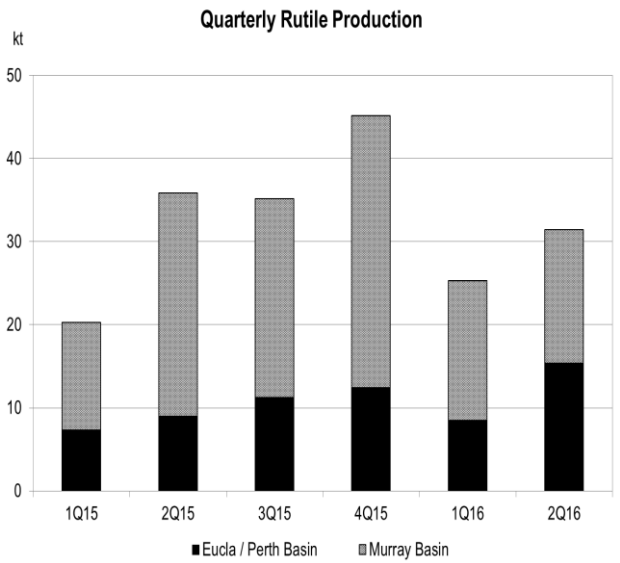
<sup>1</sup> Finished product includes material from heavy mineral concentrate (HMC) initially processed in prior periods.

## APPENDIX 2 – PRODUCTION SUMMARIES

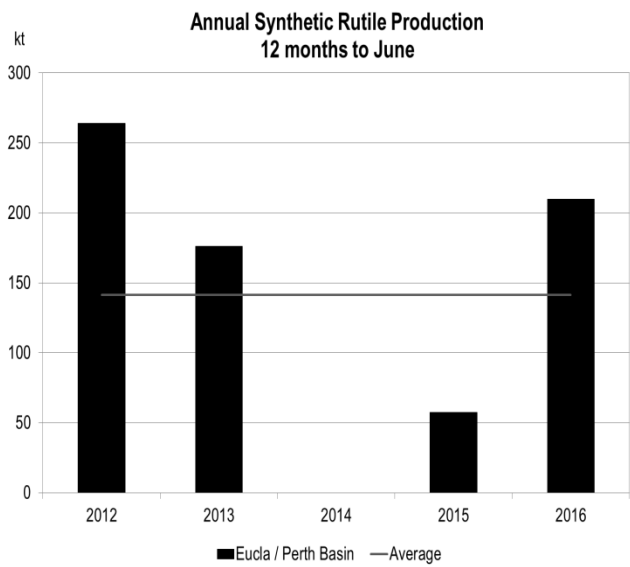
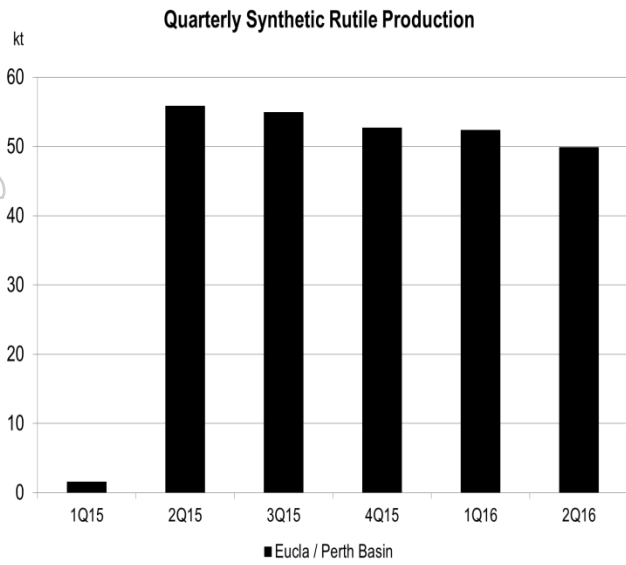
### Zircon



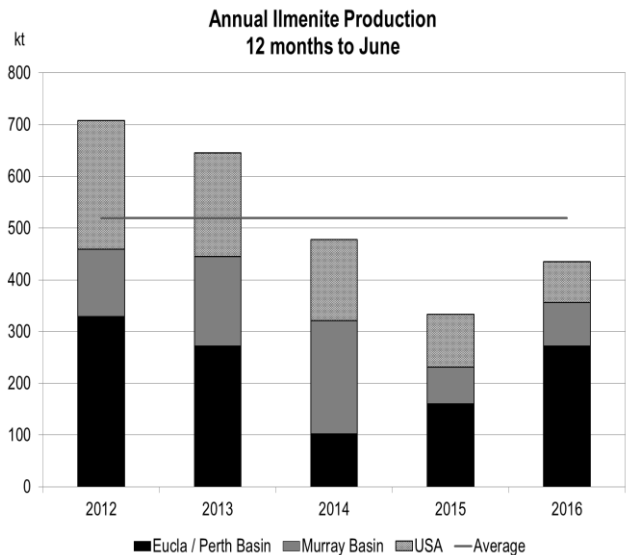
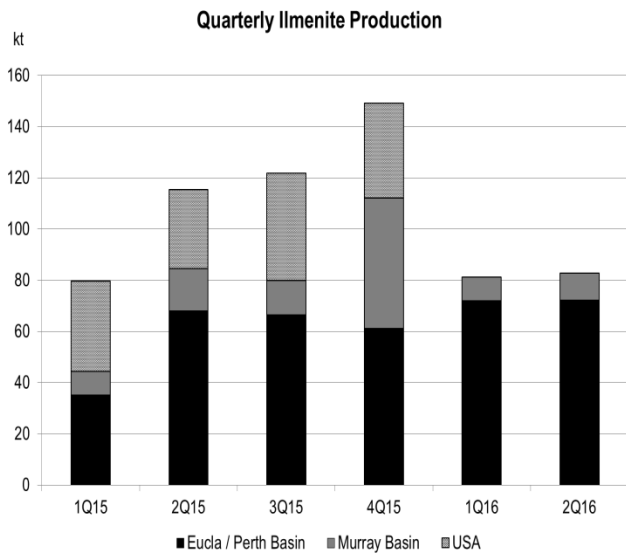
### Rutile



## Synthetic Rutile

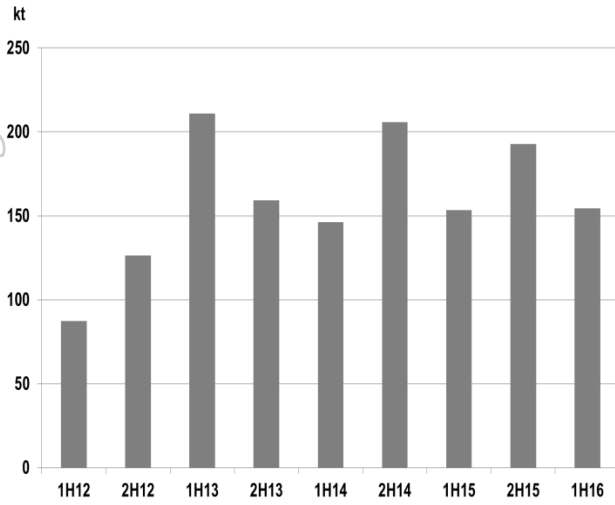


## Ilmenite

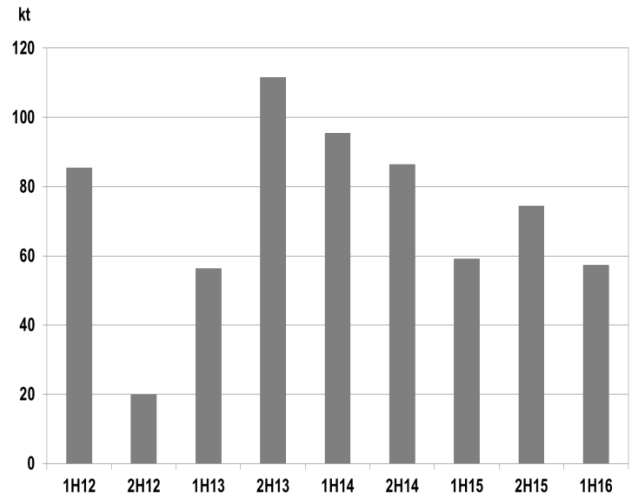


## APPENDIX 3 – HALF YEARLY SALES SUMMARIES

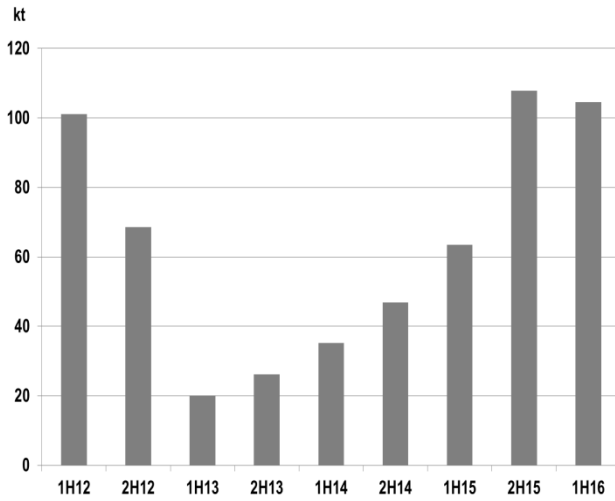
### Zircon



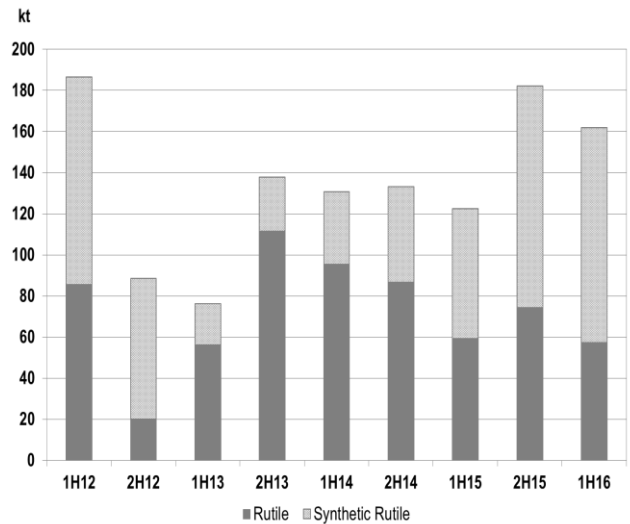
### Rutile



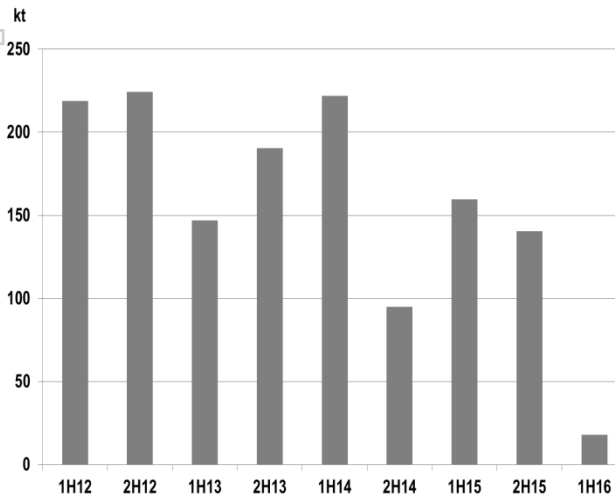
### Synthetic Rutile



### Rutile & Synthetic Rutile



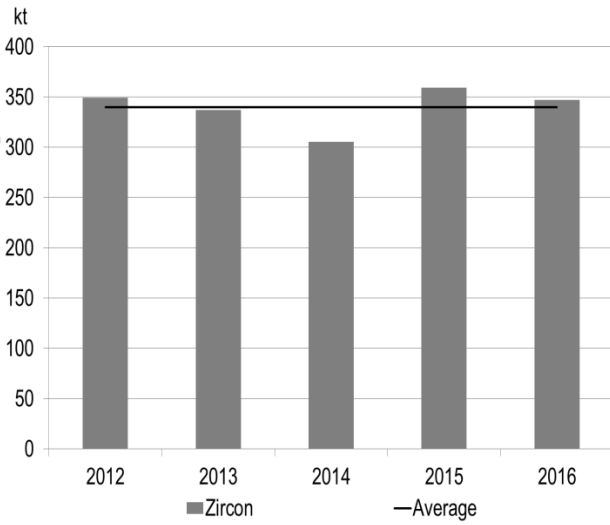
### Ilmenite



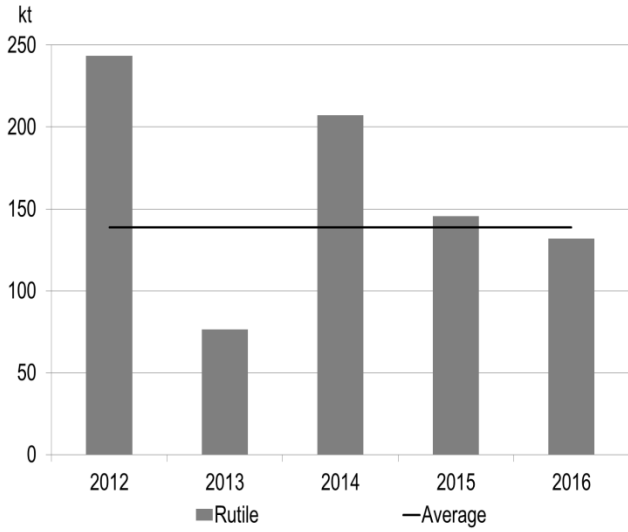


**APPENDIX 4 – 12 MONTHS SALES SUMMARIES TO 30 JUNE**

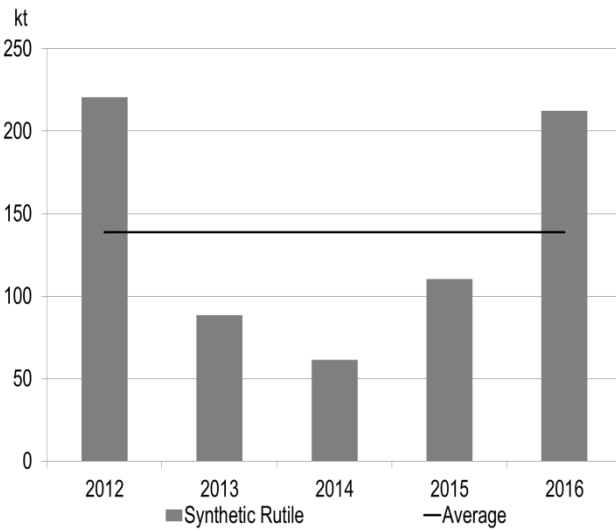
**Zircon**



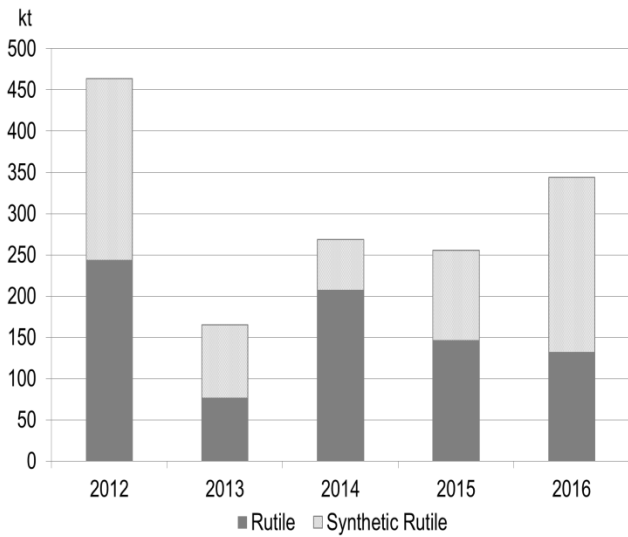
**Rutile**



**Synthetic Rutile**



**Rutile & Synthetic Rutile**



**Ilmenite**

