## 25 January 2019

ASX: ILU

ILUKA

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# **QUARTERLY REVIEW 31 DECEMBER 2018**

# **KEY FEATURES**

- Full year 2018 zircon production up 12% to 349 thousand tonnes (2017: 312 thousand tonnes)
  - improvement on guided production of 330 thousand tonnes, benefitting from higher ore grades and improved recoveries at Jacinth-Ambrosia and additional release of zircon in concentrate
- 2018 rutile production down 46% to 163 thousand tonnes (2017: 302 thousand tonnes)
  - as guided, lower rutile production was expected with the cessation of processing operations at Murray Basin (2017: 93 thousand tonnes)
  - Sierra Rutile produced 122 thousand tonnes of rutile due to disappointing operational performance and interruptions due to strike action
- Synthetic rutile production up 4% to 220 thousand tonnes, record annual production from the SR2 kiln
- Q4 Z/R/SR production 187 thousand tonnes (Q3 2018: 194 thousand tonnes) with lower rutile production from Sierra Rutile
- 2018 Z/R/SR revenue up 22% to \$1,244 million
  - 41% year on year increase in weighted average zircon price to US\$1,351 per tonne (Q4 zircon price US\$1,530 per tonne) and 21% year on year increase in rutile price to US\$952 per tonne (Q4 rutile price US\$1,038 per tonne)
  - 2018 Z/R/SR sales volumes down 7% to 827 thousand tonnes (2017: 889 thousand tonnes), reflecting production constraints
- Achieved net cash position of \$2 million (31 December 2017: net debt \$183 million), reflecting strong free cash flow of \$304 million in 2018 whilst investing \$312 million in capital expenditure

# PRODUCTION

	Q4 2017	Q3 2018	Q4 2018	Full year 2017	Full year 2018	2018 vs 2017
	kt	kt	kt	kt	kt	%
Zircon	59.2	96.5	93.2	312.3	348.6	11.6
Rutile	56.3	43.7	36.7	302.1	163.2	(46.0)
Synthetic rutile	53.1	53.7	56.9	210.8	219.9	4.3
Total Z/R/SR production	168.6	193.9	186.8	825.2	731.7	(11.3)
Ilmenite	129.7	118.3	65.9	448.1	395.1	(11.8)
Total mineral sands production	298.3	312.2	252.7	1,273.3	1,126.8	(11.5)

SALES	H1 2018	H2 2018	Full year 2017	Full year 2018	Full year 2018 vs 2017
	kt	kt	kt	kt	%
Zircon	189.6	189.7	380.4	379.3	(0.3)
Rutile	136.1	97.1	264.3	233.2	(11.8)
Synthetic rutile	112.9	101.6	244.4	214.6	(12.2)
Total Z/R/SR sales	438.6	388.4	889.1	827.1	(7.0)
Ilmenite	119.5	105.0	202.7	224.5	10.7
Total mineral sands sales	558.1	493.3	1,091.8	1,051.6	(3.7)

REVENUE AND CASH COST						Full year
	Q4	Q3	Q4	Full year	Full year	2018
· · · · · · · · · · · · · · · · · · ·	2017	2018	2018	2017	2018	vs 2017
A\$ million						%
Z/R/SR revenue	227.4	303.4	298.4	959.0	1,170.5	22.1
Ilmenite and other revenue <sup>1</sup>	18.0	13.5	19.8	58.5	73.6	25.8
Mineral sands revenue	245.4	316.9	318.2	1,017.5	1,244.1	22.3
A\$ million						
Production cash costs Z/R/SR				362.1	443.6	22.5
Ilmenite concentrate & by-product costs				10.3	11.5	11.3
Total cash cost of production				372.4	455.1	22.2
A\$ per tonne						
Unit cash production cost per tonne Z/R/SR produced <sup>2</sup>				439	606	38.1
Unit cost of goods sold per tonne Z/R/SR sold				743	750	0.9
Revenue per tonne of Z/R/SR sold	1,172	1,532	1,568	1,079	1,415	31.2
Average AUD:USD (cents)	76.9	73.2	71.8	76.7	74.8	(2.5)

All currency is Australian dollar denominated unless otherwise indicated.

1. 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.

2. Excludes ilmenite and by-products.

#### PRODUCTION AND OPERATIONS

#### Australian Operations

Iluka's primary zircon mine, Jacinth-Ambrosia, South Australia, operated at full capacity over the course of 2018. Higher than anticipated ore grades and improved recoveries resulted in an increase in heavy mineral concentrate (HMC) inventory over the course of 2018. This inventory will help to smooth future zircon production from Iluka's operations. In the December quarter, mining was completed at the southern end of the Jacinth deposit. The mining unit is now located at Jacinth North, where it will remain before moving to Ambrosia, planned for the second half of 2019.

The Narngulu mineral separation plant in Western Australia processed 530 thousand tonnes of HMC in 2018, exclusively from Jacinth-Ambrosia. In the fourth quarter, a total of 87 thousand tonnes of zircon was produced at Narngulu (including 16 thousand tonnes of zircon in concentrate), the highest quarter of zircon production for the year. In 2019, the plant will continue to process concentrate from Jacinth-Ambrosia and will also process non-magnetic material from Cataby when operations commence in H1 2019.

Full year synthetic rutile production from Iluka's SR2 kiln at Capel, Western Australia, was 220 thousand tonnes, the highest annual production achieved from the SR2 kiln since commissioning in 1997. This result reflects high kiln operating runtimes achieved throughout the year. In 2018, ilmenite feedstocks for the kiln were from both internal and external sources. From February 2019, the kiln will undergo a major maintenance outage for approximately two months before beginning its next four year campaign. Cataby will provide the main source of ilmenite feedstock for the kiln in 2019.

#### **Sierra Leone Operations**

Sierra Rutile produced 122 thousand tonnes of rutile in 2018. This is 28% lower than 2017 (168 thousand tonnes) reflecting a number of factors that have hampered operations over the year including maintenance issues at the dredge earlier in the year, commissioning and operational issues with the in-pit mining unit and industrial activity in the December guarter.

Rutile production in the December quarter was 28 thousand tonnes, down from 32 thousand tonnes in the September quarter. The lower than expected rutile production was due to industrial actions suspending operations and ongoing mechanical and operational issues resulting in lower runtimes and ore throughput rates. Iluka continues to focus on implementing a range of measures that have been identified to improve production outcomes and ensure operational targets are met consistently.

The unlawful strike action resulted in operations halting over two separate periods in the December quarter. Approximately two weeks of production were lost, with additional time required to ramp up to full operations. These actions were disclosed in ASX releases on 23 October and 28 November respectively. As foreshadowed in the 28 November ASX release, an independent taskforce was subsequently established by the Government of Sierra Leone to investigate this activity. The taskforce found the strike was illegal and that lluka had taken appropriate measures to ensure the safety of its people and assets. Improving performance at Sierra Rutile requires a stable operating environment and Iluka is working closely with the Government to achieve this. The Government has expressed strong support for Iluka's investment in Sierra Rutile and the findings of its taskforce are an important step towards achieving long-term stability.

	Q4 2017	Q3 2018	Q4 2018	Full year 2017	Full year 2018	Full year 2018 vs 2017
	kt	kt	kt	kt	kt	%
Zircon <sup>1</sup>						
Eucla/Perth Basin (SA/WA)	47.9	91.7	86.9	236.5	327.8	38.6
Murray Basin (VIC)	2.6	-	-	57.2	0.1	(99.9)
Australia	50.5	91.7	86.9	293.7	327.9	11.6
Sierra Leone	-	-	6.3	3.0	11.4	279.8
Virginia (USA)	8.7	4.8	-	15.6	9.3	(40.3)
Total zircon production	59.2	96.5	93.2	312.3	348.6	11.6
Rutile						
Eucla/Perth Basin (SA/WA)	11.0	11.4	8.6	41.8	41.7	(0.2)
Murray Basin (VIC)	3.9	-	-	92.7	-	(100.0)
Australia	14.9	11.4	8.6	134.5	41.7	(69.0)
Sierra Leone	41.4	32.3	28.1	167.6	121.5	(27.5)
Total Rutile production	56.3	43.7	36.7	302.1	163.2	(46.0)
Synthetic Rutile (WA)	53.1	53.7	56.9	210.8	219.9	4.3
TOTAL Z/R/SR PRODUCTION	168.6	193.9	186.8	825.2	731.7	(11.3)
Ilmenite						
Eucla/Perth Basin (SA/WA)	73.0	81.6	53.5	271.1	289.8	6.9
Murray Basin (VIC)	42.3	20.2	-	119.4	50.8	(57.4)
Australia	115.3	101.8	53.5	390.5	340.6	(12.8)
Sierra Leone	14.4	16.5	12.4	57.6	54.5	(5.4)
Total Ilmenite	129.7	118.3	65.9	448.1	395.1	(11.8)
TOTAL MINERAL SANDS PRODUCTION	298.3	312.2	252.7	1,273.3	1,126.8	(11.5)

1. Iluka's zircon production figures include volumes of zircon processed under external arrangements.

Note: Production is attributed to the regional operating mine or basin from which it originates. Processing of final product occurs at the Narngulu mineral separation plant, Western Australia and in Sierra Leone. Appendix 1 provides further production details.

## MINERAL SANDS MARKET CONDITIONS

## Zircon Market

Iluka's full year 2018 zircon sales were 379 thousand tonnes, in line with 2017.

As anticipated, demand for zircon slowed in the fourth quarter although demand in Europe and India slowed more than Iluka expected. Despite this, there was minimal impact to Iluka's sales.

The company is of the view that underlying demand across the various market sectors in China remains sound. Buying across all Chinese sectors is expected to pick up when plants re-open after the Chinese New Year. However, a further slowing in the Chinese construction sector or any escalation in the US-China trade war could have a negative impact on the timing of Chinese companies coming on-line and the operating rates targeted. The ceramics industry continues to evolve with the expectation that the more modern, and larger, ceramic production facilities will gain market share at the expense of companies unable to adjust to the stringent enforcement of Chinese environmental regulations.

Customers outside of China have cited the deterioration in the international trade climate as a reason for their more cautious buying in the last quarter. Many have reduced stocks at year-end such that it appears there has been only limited inventory re-build through the value chain. This will necessitate a pick-up in buying over the first half of 2019 if demand is to be sustained at levels consistent with 2017 and 2018.

While demand is temporarily subdued, supply and demand currently appear balanced. Iluka's view is that this balance will be temporary because of an emerging structural deficit. As this dynamic unfolds, or in the event of supply disruptions (as experienced in 2017 and 2018), Iluka will continue to release additional product into the market in the form of zircon in concentrate in support of our customers and the broader industry.

The weighted average achieved FOB price in 2018 for zircon premium and standard was US\$1,351 per tonne, up 41% from 2017. As previously reported, the Zircon Reference Price was increased to US\$1,580 per tonne effective 1 October 2018 for a period of 6 months. The weighted average FOB zircon premium and standard price for Q4 was US\$1,530 per tonne. Iluka's approach to zircon market price setting remains to provide both sustainability and predictability.

#### **Titanium Dioxide Feedstock Market**

2018 sales of high grade titanium feedstocks of rutile and synthetic rutile were 448 thousand tonnes, down around 12% from 509 thousand tonnes in 2017 due to production constraints and limited inventory to draw down.

Production disruptions at mineral sands operations, including Iluka's Sierra Rutile operations, reduced availability of high grade titanium feedstocks in 2018. The supply-side issues coupled with strong demand has created tight market conditions and driven price appreciation in the high grade market.

Demand for Iluka's high grade titanium feedstocks remained strong in the December quarter. This was despite some weakness in pigment demand across Europe and China. The northern hemisphere winter is seasonally a period of weak demand for pigment and some pigment producers are cutting operating rates and bringing forward planned maintenance. The reduction in pigment production appears to have dampened impacts on seasonal inventory build. So, with pigment demand expected to pick up over the course of 2019, customer demand for high grade titanium feedstocks is likely to remain strong.

Iluka enters 2019 with minimal inventories of feedstocks and will be closely managing shipments to match production in order to meet customer demand.

Sequential price increases ranging from 8 to 11% for rutile/synthetic rutile have been negotiated for all volumes contracted in the first half 2019. Contract prices for rutile now exceed \$1,100 per tonne to pigment and \$1,300 per tonne to welding markets, an annual increase of approximately 23%.

## **Iluka Weighted Average Received Prices**

The following table provides weighted average received prices for Iluka's main products. Iluka's Annual Report, available at www.iluka.com contains further historical mineral sands price information.

Weighted Average Price US\$/tonne FOB	H1 2018	H2 2018	Full year 2017	Full year 2018
Zircon Premium and Standard	1,278	1,434	958	1,351
Zircon (all products including zircon in concentrate) <sup>1</sup>	1,240	1,403	940	1,321
Rutile (excluding HYTI) <sup>2</sup>	906	1,022	790	952
Synthetic rutile	Refer Note 3	Refer Note 3	Refer Note 3	Refer Note 3

Note 1: 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. The prices for each product vary, as does the mix of such products sold period to period. In 2018 the split of zircon sand and concentrate by zircon sand-equivalent was approximately: 79%;21% (full year 2017: 88%;12%).

Note 2: Excluded from rutile sales prices is a lower value titanium dioxide product, HYTI that typically has a titanium dioxide content of 70 to 90%. This product sells at a lower price than rutile, which typically has a titanium dioxide content of 95%.

Note 3: Iluka's synthetic rutile sales are, in large part, underpinned by commercial offtake 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, is priced lower than natural rutile.

# **PROJECT UPDATES**

#### Lanti dry and Gangama mine expansions, Sierra Leone

Iluka is progressing with the doubling of capacity of both the Gangama and Lanti dry operations from 500-600 tonne per hour to 1,000-1,200 tonne per hour. Capital expenditure for these expansions received Board approval in December 2017.

Progress on the expansion projects is in line with the budget and schedule. Construction of the second Gangama concentrator is 40% complete. The earth moving fleet has been delivered to site and Gangama commissioning is scheduled mid-2019. At Lanti, the shop fabrication of the mining unit is complete and the unit will be shipped to site in late Q1. Planning for the re-purposing of the Lanti floating concentrator is progressing with site activity to ramp up in March. Lanti is scheduled for commissioning in the second half of 2019.

#### Sembehun mine, Sierra Leone

The Sembehun group of deposits are situated 20 to 30 kilometres north-west of the existing Sierra Rutile operations. Iluka plans to initially develop a new 1,000-1,200 tonne per hour mine at these deposits.

The definitive feasibility study (DFS) on Stage 1 commenced in March 2018 and is continuing with solid progress having been made towards completion.

A number of value optimisation studies continued to investigate options around the timing, capacity and sequence of mining and concentrating options across the Sembehun deposits. This work is scheduled to conclude early in the second half, at the same time as the conclusion of the Sembehun Stage 1 DFS.

#### Mineral separation plant upgrade, Sierra Leone

Mineral separation plant (MSP) equipment and general site upgrades are required to meet the additional capacity that will be generated by the Sembehun development. The upgrade will also assist in improving safety, operational and metallurgical efficiencies. A value optimisation study is underway to consider various plant configurations.

#### Cataby, Western Australia

Cataby is a large, chloride ilmenite-rich deposit 150 kilometres north of Perth. The mine development was approved in December 2017, with first production scheduled for the first half of 2019. Site construction activities are largely complete and early wet commissioning commenced. Pre-strip mining is well advanced and some ore has been stockpiled for start-up. The operational teams are now in place to deliver the first production. Capital expenditure is within budget.

The mine is a conventional mineral sands development, utilising dozer push and truck and excavator mining to feed two in-pit mining units. An onsite Wet High Intensity Magnetic Separation (WHIMS) plant will separate the magnetic (ilmenite) and non-magnetic product streams (zircon and rutile), with the mine expected to produce approximately 370 thousand tonnes of chloride ilmenite, 50 thousand tonnes of zircon and 30 thousand tonnes of rutile on average over an eight and a half year mine life. Access to additional ore reserves could extend the mine life by a further four years.

Ilmenite sourced from Cataby will be transported to Capel for synthetic rutile production (approximately 200 thousand tonnes per year on average) and the non-magnetic stream to Iluka's Narngulu mineral separation plant at Geraldton for final processing (zircon and rutile). As previously announced, Iluka has secured offtake agreements with Western pigment producers for 85% of the synthetic rutile production from Cataby, underpinning returns from the project.

#### Jacinth-Ambrosia, South Australia

In October 2018 the Iluka Board approved funding of ~\$55 million to bring forward the mine move to the Ambrosia deposit to the fourth quarter of 2019 (previously planned for 2022). This was assessed as the best option to smooth production from Jacinth-Ambrosia and partially offset the impact of declining grade over the operation's remaining mine life.

Execution works commenced during the December quarter, including construction of the mine access road, relocation of mechanical equipment and expansion of the existing camp and amenities. Access road construction is complete and pre-stripping of the deposit has commenced. All long lead equipment contracts have been placed for the mine move and construction of supporting infrastructure commenced in the first quarter of 2019.

Capital expenditure of ~\$35 million is expected in 2019 for roads, earthworks, high voltage power, mining pipework and pumping infrastructure, as well as site infrastructure and buildings.

The remaining deferred capital of ~\$20 million is to be spent over 2020-21, related to tailings infrastructure and management.

#### Fine Minerals, Murray Basin, Victoria

Iluka holds exploration licences over a number of fine grained heavy minerals sands ore-bodies within the Victorian Murray Basin province. To date none of these deposits have been developed into mining operations due to technical challenges associated with purity and recovery of the valuable minerals. Since 2014 Iluka has been undertaking metallurgical test work and, based on bench scale testing, believes processing technologies have been identified.

Iluka recently commenced a pre-feasibility study for the WIM100 Fine Minerals deposit in the Wimmera region of Victoria into the mining and beneficiation of zircon and rare earth products. A test pit has been completed and an ore sample sent to the mineral test facility in Capel, Western Australia for testing and preparation of customer samples. This project has the potential for the long term supply of zircon into the market along with rare earth elements in mixed carbonate form.

The pre-feasibility study is scheduled to be concluded by the end of 2019.

#### Balranald, Murray Basin, New South Wales

Balranald and Nepean are two rutile-rich deposits in the northern Murray Basin, New South Wales. Work on the development at Balranald has continued. A drilling programme to provide more detailed understanding of the deposit mineralisation has been completed and the results are being assessed. The proposed final trial

in 2019 has been designed to determine whether the underground mining and backfilling technology is economically viable in a continuous mining and processing environment.

#### Puttalam (PQ), Sri Lanka

The potential for the development of the mineral sands deposit known as the Puttalam Quarry (PQ) continues to be 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 is focussed on legal and investment terms for the development and includes securing surface access rights, ministerial and other governmental approvals for any subsequent mining licence, and reaching agreement with the Sri Lankan Government regarding the fiscal and other arrangements that will apply to the project. Recent political uncertainty is expected to delay progress on achieving certainty in respect of fiscal arrangements.

A PFS is being undertaken on the project, including work packages relating to pre-mining or baseline conditions of the PQ deposit. This is expected to be completed in the first half of 2019.

# EXPLORATION

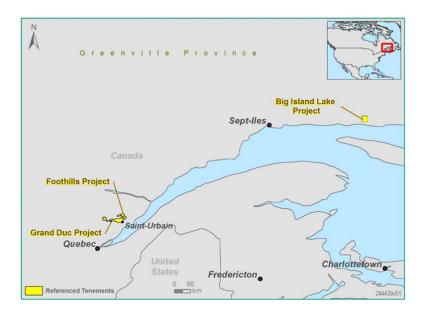
Expenditure on exploration and evaluation charged to the profit and loss account for the December quarter 2018 was \$2.6 million, with full year expenditure of \$11.7 million (2017: \$12.7 million).

## Canada

Iluka continued to fund Societe d'Exploration Miniere Vior Inc. ("Vior") to undertake exploration for high grade rutile/ilmenite deposits in the Foothills and Grand Duc and Big Island Lake (BIL) project areas in Quebec.

A 1,462 line kilometre HeliFalcon geophysical survey was completed at the project areas in November. Data processing and interpretation will be completed in Quarter One 2019 to generate drill targets for testing in Quarter Three 2019.

Figure 1: Grand Duc, Foothills and Big Island Lake Projects, Quebec, Canada



#### Sierra Leone

Subsequent to the December quarter, a Mineral Resource has been declared for the Pejebu deposit in Sierra Leone. The Pejebu Exploration Target was identified based on historical documentation and recent drilling results, refer to ASX release of 15 August 2018, *Sembehun Mineral Resource Increase and Pejebu Exploration Target, Sierra Rutile.* In January 2019, drilling has been completed and geological modelling, laboratory HM assays and chemical analyses have resulted in the estimation of a Mineral Resource. Full details are contained in a separate ASX release today, *Pejebu Inaugural Mineral Resource Estimate,* available at www.iluka.com.

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## APPENDIX 1 - OPERATING MINES – PHYSICAL DATA 12 Months to 31 December 2018

	Jacinth- Ambrosia	Murray Basin	Western Australia	Australia Total	Sierra Leone	Virginia	Group Total 2018	Group Total 2017
Mining								
Overburden moved kbcm	3,010	-	1,457	4,467	-	-	4,467	1,037
Ore mined kt	10,312	-	1,653	11,965	8,227	-	20,192	13,381
Ore grade HM %	8.2	-	14.0	9.0	3.0	-	n/a	n/a
VHM grade %	7.3	-	11.6	7.9	2.3	-	n/a	n/a
Concentrating								
HMC produced kt	674	-	20	694	240	-	934	612
VHM produced kt	597	-	18	615	171	-	786	485
VHM in HMC assemblage %	88.7	-	86.9	88.6	71.4	-	84.2	79.2
Zircon	62.9	-	13.5	61.4	3.7	-	46.6	9.7
Rutile	5.9	-	9.1	6.0	47.7	-	16.7	31.4
Ilmenite	19.9	-	64.3	21.2	20.0	-	20.9	38.1
HMC processed kt	530	-	265	795	242	-	1,037	1,280
Finished product <sup>1</sup> kt								
Zircon	289.1	0.1	38.7	327.9	11.4	9.3	348.6	312.3
Rutile	38.0	-	3.7	41.7	121.5	-	163.2	302.1
Ilmenite (saleable/upgradeable/WHIMS)	121.7	50.8	168.1	340.6	54.5	-	395.1	448.1
Synthetic rutile produced kt	-	-	219.9	219.9	-	-	219.9	210.8

#### 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 a 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.

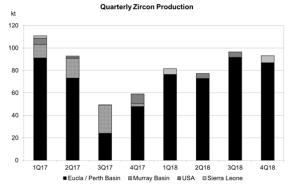
**Ilmenite** is produced for sale or as a feedstock for synthetic rutile production.

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

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

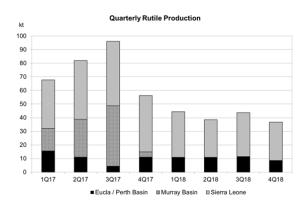
# **APPENDIX 2 – PRODUCTION SUMMARIES**

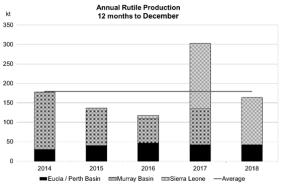
#### Zircon



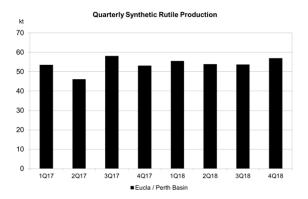
Annual Zircon Production 12 months to December kt Eucla / Perth Basin Murray Basin USA Sierra Leone Average

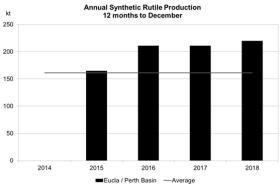
# Rutile



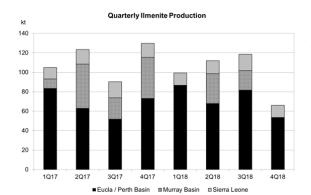


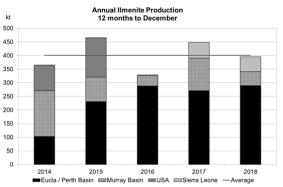
## Synthetic Rutile





#### Ilmenite





# **APPENDIX 3 – ANNUAL SALES SUMMARIES**



