



# Australian Securities Exchange Notice

28 July 2020

ASX: ILU

## QUARTERLY REVIEW TO 30 JUNE 2020

### KEY FEATURES

- Total zircon, rutile, synthetic rutile (Z/R/SR) production of 135 thousand tonnes in June quarter, reflecting a range of factors across Iluka's key products:
  - Iluka altered production settings at the Narngulu mineral separation plant, as advised in the March 2020 Quarterly Review, to reduce zircon production during this period of market uncertainty. As a result, June quarter zircon production was down 16% from Q1 to 42 thousand tonnes (Q1 2020: 50 thousand tonnes).
  - Second quarter rutile production was lower than expected, down 29% from Q1 to 35 thousand tonnes due to lower runtime and throughput at Sierra Rutile.
  - Synthetic rutile production in Capel, Western Australia increased 10% in Q2, with ilmenite upgrade rates assisted by underlying ilmenite quality, efficiencies delivered during the last MMO and aeration capacity upgrades achieved at the SR2 plant.
- First half Z/R/SR sales of 242 thousand tonnes (H1 2019: 302 thousand tonnes):
  - zircon sales improved to 53 thousand tonnes from Q1 2020 (25 thousand tonnes) but still remain affected by COVID-19 impacts on Chinese and European markets
  - high grade titanium feedstock sales of 66 thousand tonnes were lower than Q1 2020 (98 thousand tonnes); sales for the first half of 2020 were impacted by lower than expected sales to contracted customers.
- Further to Iluka's 26 June announcement regarding issuance of a Notice of Default to a customer, Iluka has commenced proceedings against Chemours in the Commercial Division of the Supreme Court of the State of New York for breach of contract in respect of Chemours' failure to pay Iluka for scheduled shipments of synthetic rutile in May and July 2020.
- H1 2020 rutile prices up 7% from H2 2019 to US\$1,246 per tonne.
- Zircon (premium and standard) price declined 6% in H1 2020 to US\$1,354 per tonne.
- Iluka's Eneabba operation completed commissioning during the quarter and the first shipment of 9kt of monazite-zircon concentrate material occurred ahead of schedule in June.
- Net cash as at 30 June 2020 of \$62 million (31 December 2019: net cash \$43 million) reflecting free cash flow of \$46 million in H1 2020 while investing \$50 million in capital expenditure.
- The demerger of Iluka's royalty business remains scheduled for the second half of 2020. A further update will be provided with the release of the half year results on 14 August.

### COVID-19 UPDATE

- Iluka's first priority continues to be the safety and wellbeing of its people, their families and the communities in which the company operates. Health and safety measures implemented across all Iluka sites include roster changes, increased cleaning, physical distancing measures and contact tracing.
- Sierra Rutile is providing additional assistance in managing the local impacts of the COVID-19 pandemic where possible and has a small number of cases among its employees. Its on-site clinic facilities are being used for the treatment and management of COVID-19 cases.
- Operational continuity has been maintained, with all mining and processing sites operational, and plans implemented to ensure supply chain and logistical continuity.

- Project work on the Balranald field trial has commenced with strict controls in place and with the support of our employees and technology partners, following some easing of restrictions in NSW. Other project work remains focussed on advancing study work with limitations on site access.
- As previously announced, Iluka has implemented a number of changes to production settings in response to the uncertain market conditions and in an effort to preserve cash during this period. These include altered production settings at the Narngulu mineral separation plant, which were in effect during Q2, as well as the return of mining to Jacinth from Ambrosia, with work progressing during the quarter for a return to the Jacinth deposit in August 2020.
- In managing the financial impacts of the COVID-19 pandemic during the quarter, Iluka continued to focus on disciplined capital allocation to maintain its strong balance sheet. Other measures included Iluka accessing the Australian Government JobKeeper payment, with receipt of \$6 million year-to-date and deferring payment of the 2019 final tax payment to September 2020 (estimated payment of \$99 million).

## PRODUCTION AND SALES

	Jun-19 Quarter	Mar-20 Quarter	Jun-20 Quarter	Jun-19 YTD	Jun-20 YTD	Jun-20 YTD vs Jun-19 YTD
	kt	kt	kt	kt	kt	%
<b>Production</b>						
Zircon	72.7	50.1	42.1	159.9	92.2	(42.3)
Rutile	40.4	49.3	34.8	80.8	84.0	4.0
Synthetic Rutile	56.0	53.2	58.3	82.8	111.6	34.8
<b>Total Z/R/SR Production</b>	<b>169.1</b>	<b>152.6</b>	<b>135.2</b>	<b>323.5</b>	<b>287.8</b>	<b>(11.0)</b>
Ilmenite	82.2	108.9	106.7	125.0	215.4	72.3
<b>Total Mineral Sands Production</b>	<b>251.3</b>	<b>261.5</b>	<b>241.9</b>	<b>448.5</b>	<b>503.2</b>	<b>12.2</b>
<b>Sales</b>						
Zircon	67.7	24.9	53.4	133.3	78.4	(41.2)
Rutile	39.5	47.2	27.5	82.9	74.7	(9.9)
Synthetic Rutile	57.4	51.0	37.5	85.6	88.5	3.4
<b>Total Z/R/SR Sales</b>	<b>164.6</b>	<b>123.1</b>	<b>118.4</b>	<b>301.8</b>	<b>241.6</b>	<b>(19.9)</b>
Ilmenite	58.2	33.6	73.5	121.5	107.1	(11.9)
<b>Total Mineral Sands Sales</b>	<b>222.8</b>	<b>156.7</b>	<b>191.9</b>	<b>423.3</b>	<b>348.7</b>	<b>(17.6)</b>

## REVENUE AND CASH COSTS

	Jun-19 Quarter	Mar-20 Quarter	Jun-20 Quarter	Jun-19 YTD	Jun-20 YTD	Jun-20 YTD vs Jun-19 YTD
						%
<i>\$ million</i>						%
Z/R/SR revenue	276.0	209.7	198.4	507.2	408.1	(19.5)
Ilmenite and other revenue <sup>1</sup>	19.2	22.5	26.0	38.4	48.5	26.3
<b>Mineral Sands Revenue<sup>2</sup></b>	<b>295.2</b>	<b>232.2</b>	<b>224.4</b>	<b>545.6</b>	<b>456.6</b>	<b>(16.3)</b>
<i>\$ million</i>						%
Production cash costs of Z/R/SR				244.2	283.0	15.9
Ilmenite concentrate and by-product costs				7.7	10.2	33.1
<b>Total Cash Costs of Production</b>				<b>251.8</b>	<b>293.2</b>	<b>16.4</b>
<i>\$ per tonne</i>						%
Unit Cash Production Costs per tonne Z/R/SR Produced <sup>3</sup>				755	983	30.1
<b>Unit Cost of Goods Sold per tonne Z/R/SR Sold</b>				<b>861</b>	<b>961</b>	<b>11.6</b>
<b>Revenue per tonne Z/R/SR Sold</b>	<b>1,677</b>	<b>1,703</b>	<b>1,675</b>	<b>1,681</b>	<b>1,689</b>	<b>0.5</b>
Average AUD:USD cents	70.0	65.9	65.7	70.6	65.7	(6.9)

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. Represents FOB revenue.
3. Excludes ilmenite and by-products.

## **PRODUCTION**

### **Australian Operations**

Mining continued at the Ambrosia deposit at Iluka's Jacinth-Ambrosia mine in South Australia, with 109 thousand tonnes of heavy mineral concentrate (HMC) produced. As previously announced, as part of the company's response to the COVID-19 pandemic, mining operations will return to the Jacinth deposit in early August. This will result in improved cash flows from the lower operating costs at Jacinth mainly due to lower strip ratio and lower unit costs due to less haulage and pumping costs. Estimated costs savings over 2020-2022 are \$30 million.

In Western Australia, the Cataby operation produced 148 thousand tonnes of HMC, up from 115 thousand tonnes in the previous quarter. This included 100 thousand tonnes of magnetic material (for use as synthetic rutile feed) and 48 thousand tonnes of non-magnetic material (for zircon and rutile production).

The Narngulu mineral separation plant (MSP) processed 73 thousand tonnes of HMC during the quarter, including material from both the Cataby and Jacinth-Ambrosia mines. This reflects Iluka's decision to amend production settings to process HMC consecutively at the Narngulu mineral separation plant to reduce zircon production during the uncertainty created by the COVID-19 pandemic. The plant retains full flexibility to return to higher production settings within 24 hours.

The synthetic rutile plant 2 at Capel continued its consistent performance, producing 58 thousand tonnes of synthetic rutile during the quarter. In light of current customer offtake levels, Iluka will continue to monitor production settings and adjust if appropriate.

Iluka's Eneabba project in Western Australia began operations in April and the first shipment of 9kt of monazite-zircon concentrate left Geraldton port in June. Operations are continuing on a campaign basis.

### **Sierra Leone Operations**

Rutile production in the June quarter was below expectations at 26 thousand tonnes, down from 36 thousand tonnes in the preceding quarter. Production in the month of June was more in line with expectations and materially better than April's and May's performance.

In addition to several downtime events occurring during the period leading to lower throughputs at the mining operations, production was further hampered by COVID-19 disruptions, including the ability to maintain specialised skillsets typically provided by expatriate resources.

Sierra Rutile continues to focus on the health and safety of its employees and local communities and is providing additional assistance in managing the local impacts of the COVID-19 pandemic where possible. In addition to measures implemented at all Iluka sites, SRL's on-site clinic facilities are being used for the treatment and management of the small number of COVID-19 cases among its employees.

### **Operational Costs and Inventory**

Production cash costs of \$283 million in H1 2020 were 16% higher than H1 2019 due to Cataby operating for the six month period at full rates in 2020 compared with Cataby having commenced operations in April 2019. This increase was partially offset by reduced cash costs achieved via the changed plant settings at Narngulu and reduced overburden movement costs ahead of the upcoming mine move to Jacinth.

Operational changes in the first half have curtailed production of finished goods. This had the effect of reducing processing costs and finished goods inventory build. Mining at Cataby and Jacinth-Ambrosia continued at full production rates to optimise unit cost of heavy mineral concentrate. As a result, while unit costs of production of HMC were in line with expectations, unit costs of production, which are reported relative to finished goods, have increased and were up 30% from H1 2019 to \$983 per tonne. An increase of heavy mineral concentrate stocks has also been recorded. Over the period, this has resulted in total inventory increasing to \$560 million from \$425 million at December 2019.

## **MINERAL SANDS MARKET CONDITIONS**

### **Zircon Markets**

First half zircon sales of 78 thousand tonnes were significantly lower than the corresponding period last year (133 thousand tonnes) reflecting the impact of COVID-19 on key markets.

Ceramic industry activity in China recovered in April and remained relatively flat throughout the second quarter. Chinese tile makers operating rates were at around 50-60% of operating rates for the same period in 2019, while pressure from property developers for more favourable pricing and payment conditions resulted in margin pressure through the entire value chain and the closure of some smaller producers. Chinese tile exports are also affected by reduced demand from key markets, including the US. In Europe, India and the US the ceramic sector has been impacted by COVID-19 lockdowns with a significant reduction in the industrial activity in the quarter. European tile manufacturing operating rates have been at around 60% of 2019 levels.

The foundry market remains subdued due to reduced car manufacturing globally, and export orders recorded by Chinese foundry continued to deteriorate amid weak external demand. The refractory segment completed the quarter with stable production, albeit with a shorter order book than at the start of the year, due to lower demand globally.

The fused zirconia industry has been relatively resilient during the quarter with similar operating rates to last year's, while zirconium chemicals producers in China recorded significantly higher demand from the US and Japan, likely from strategic buying, with signs of a softening for next quarter.

Customer zircon inventories remain low as customers preserve cash and are mindful of ongoing global uncertainties.

The weighted average zircon price achieved in the first half of 2020 for premium and standard sand was US\$1,354 per tonne, registering some erosion from the Q4 2019 level of US\$1,438 per tonne due to the weakness of demand and competitive pressure. As noted previously, Iluka does not expect that lower prices will stimulate additional global demand for zircon.

### **Titanium Dioxide Feedstock Markets**

High grade titanium dioxide feedstock (rutile and synthetic rutile) sales for H1 2020 were 163 thousand tonnes, broadly in line with sales volumes in H1 2019 (168 thousand tonnes). Second quarter sales were 66 thousand tonnes, down 33% from the previous quarter.

In the second quarter, markets served by Iluka's high grade titanium feedstocks, including pigments, welding and sponge, continued to be impacted by COVID-19 and experienced a slowdown in demand. As a result, customers have reduced capacity utilisation rates and pulled forward planned maintenance activities to reduce finished goods inventory build. Reports by end users of pigment, mainly large paint producers, point to a rebound in demand at the end of Q2 as DIY and professional painting activity was picking up and sales of paints and coatings were improving. Welding and sponge markets continue to be impacted by COVID-19 related shutdowns in various regional markets. End use demand for these segments has also been impacted with the reduction of aerospace related demand for titanium metal due to a downturn in aircraft orders. As a result, tightness in the high grade feedstock segment eased during the quarter and demand for spot shipments reduced.

The achieved weighted average H1 2020 price of rutile was US\$1,246 per tonne, up 7% from H2 2019 (US\$1,167 per tonne).

On 26 June 2020, Iluka announced that it had issued a Notice of Default to one of its customers. Further to that announcement, on 27 July 2020, Iluka commenced proceedings against Chemours in the Commercial Division of the Supreme Court of the State of New York for breach of contract in respect of Chemours' failure to pay Iluka for scheduled shipments of synthetic rutile in May and July 2020.

## PROJECT UPDATES

Updates on projects with material progress over the June quarter is provided below. Refer Iluka's website ([www.iluka.com](http://www.iluka.com)) for further information related to all projects.

### **Eneabba, Western Australia**

The Eneabba project in Western Australia involves the extraction, processing and sale of a strategic stockpile rich in monazite (a mineral containing rare earth elements) and zircon. This stockpile is stored in a mining void resulting from Iluka's mineral sands operations in the region.

Initial production from the now commissioned Eneabba Phase 1 operation was shipped ahead of schedule in June. The feasibility study for Phase 2 (the upgrade of the 20% monazite concentrate to a higher grade concentrate) is progressing in line with plans. Iluka is also exploring the development of further downstream processing of monazite in Western Australia.

### **Balranald, New South Wales**

Balranald and Nepean are two rutile-rich deposits in the northern Murray Basin, New South Wales. Owing to their relative depth, Iluka is assessing the potential to develop these deposits via a novel, internally developed, underground mining and backfilling technology.

A third technology trial (T3) to determine whether the technology is economically viable in a continuous mining and processing environment had been delayed due to travel restrictions associated with the COVID-19 pandemic. However, in close collaboration with our contractors and technology partners, personnel and resources have now been mobilised to site and trial activities commenced. Absent any further COVID-19 related delays, preliminary results of the trial are expected in Q4 2020.

### **Wimmera, Victoria**

The Wimmera project involves the mining and beneficiation of a fine grained heavy mineral sands ore body in the Victorian Murray Basin for the potential long term supply of zircon into the market along with rare earths.

Study work has been largely focussed on removal of impurities from the zircon to validate a processing solution. Environmental baseline studies were also progressed during the quarter.

### **Sembehun mine, Sierra Leone**

The Sembehun group of deposits are situated 20 to 30 kilometres north-west of the existing Sierra Rutile operations. Sembehun is one of the largest and highest quality known rutile deposits in the world, with work to date focused on determining a development approach which ensures optimum value can be created from Sembehun.

With access to site still unavailable in Sierra Leone, and restrictive working conditions in South Africa, progress on the Sembehun project has been limited to preparing the various scopes of work for the Preliminary Feasibility Study. The focus is currently on progressing critical PFS activities that protect schedule but do not require site access or significant third party interaction.

## EXPLORATION

Expenditure on exploration and evaluation charged to the profit and loss account for the June quarter 2020 was \$2.1 million with expenditure in H1 2020 of \$4.8 million (H1 2019: \$4.8 million).

In addition to the ongoing geological development of Iluka's existing Resource and Reserve base (Near Mine / In Mine), Iluka's discovery strategy is built upon substantial technical experience and focussed on the identification and gated assessment of mineral sands prospects of sufficient quality and size to support new project development (New Mine).

With limited field activities possible due to COVID-19 related restrictions, Iluka's discovery team fast tracked a strategic review of over 126 exploration opportunities, identifying 9 prospective targets that have progressed to the next phase of desktop assessment in H2 2020.

Subject to COVID-19 restrictions easing, Iluka remains focussed on field testing four targets within Australia and USA that are further progressed within the discovery pipeline.

### Australia

Iluka notes the initial exploration results announced by Western Areas Ltd (ASX release, 23rd June 2020: Drilling at Western Gawler Intersects Significant Widths of Nickel and Copper Bearing Mineralisation). The results are within the Western Gawler Project in South Australia. Tenure is held by Iluka and is the subject of an earn-in joint venture over base metal rights in which Iluka currently holds 49%. Western Areas has a right to earn up to 75% equity subject to additional expenditure.

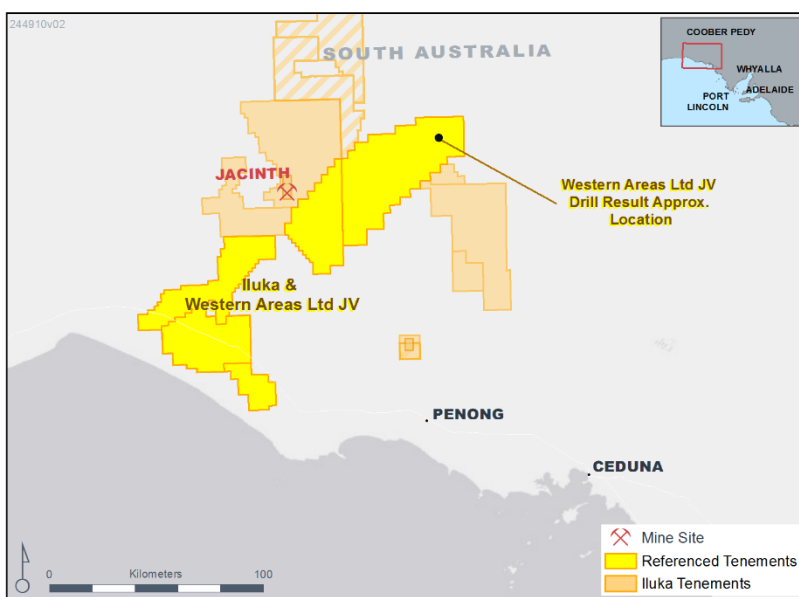


Figure 1: Iluka and Western Areas Ltd JV, South Australia

### Canada

Iluka and Societe d'Exploration Miniere Vior Inc. ("Vior") have been undertaking greenfield exploration for high grade rutile/ilmenite deposits in the Foothills and Grand Duc project areas in Quebec.

Limited progress has been made in the quarter due to COVID-19 related restrictions. Late in the quarter, analytical facilities re-opened in Quebec and analysis of drilling completed in Q1 2020 commenced.

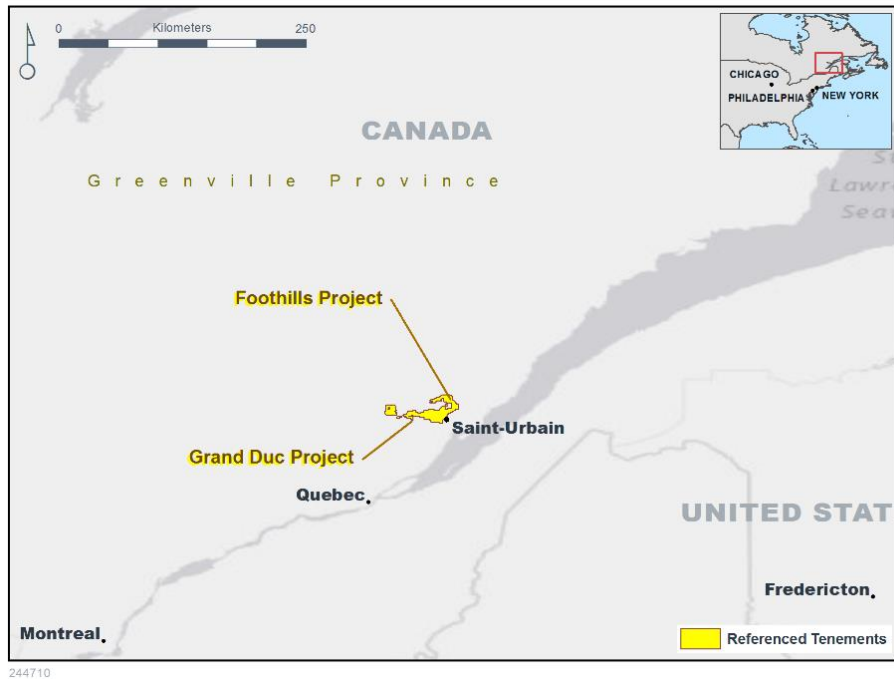


Figure 2: Grand Duc, Foothills and Big Island Lake Projects, Quebec, Canada

### Other Matters

In August 2017, Iluka advised that it had voluntarily reported to the UK Serious Fraud Office conduct identified as part of a post-acquisition review of Sierra Rutile. This conduct related to the period before the acquisition of SRL by Iluka. SRL has now been advised by the SFO that it has discontinued its investigation into SRL.

### 2020 Half Year Results

Iluka is scheduled to release its 2020 Half Year Results on 14 August 2020.

A teleconference with management will be hosted on the day. Dial in details will be released closer to the date.

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## APPENDIX: QUARTERLY REVIEW DATA TABLES

GROUP MINERAL SANDS PRODUCTION	Jun-19	Mar-20	Jun-20	Jun-19	Jun-20	Jun-20
	Quarter	Quarter	Quarter	YTD	YTD	YTD vs Jun-19 YTD
	kt	kt	kt	kt	kt	%
<b>Zircon<sup>1</sup></b>						
Jacinth-Ambrosia/Mid west WA	59.0	39.5	29.3	137.2	68.8	(49.9)
Cataby/South west WA	9.6	10.6	12.8	18.6	23.4	25.8
Sierra Leone	4.1	-	-	4.1	-	(100.0)
<b>Total Zircon Production</b>	<b>72.7</b>	<b>50.1</b>	<b>42.1</b>	<b>159.9</b>	<b>92.2</b>	<b>(42.3)</b>
<b>Rutile</b>						
Jacinth-Ambrosia/Mid west WA	8.2	6.5	4.0	17.5	10.4	(40.6)
Cataby/South west WA	1.9	6.8	5.0	3.6	11.8	227.8
Sierra Leone	30.3	36.0	25.8	59.7	61.8	3.5
<b>Total Rutile Production</b>	<b>40.4</b>	<b>49.3</b>	<b>34.8</b>	<b>80.8</b>	<b>84.0</b>	<b>4.0</b>
<b>Synthetic Rutile (WA)</b>	<b>56.0</b>	<b>53.2</b>	<b>58.3</b>	<b>82.8</b>	<b>111.6</b>	<b>34.8</b>
<b>TOTAL Z/R/SR PRODUCTION</b>	<b>169.1</b>	<b>152.6</b>	<b>135.2</b>	<b>323.5</b>	<b>287.8</b>	<b>(11.0)</b>
<b>Ilmenite</b>						
Jacinth-Ambrosia/Mid west WA	32.1	25.4	15.8	58.2	41.1	(29.4)
Cataby/South west WA	37.0	68.4	82.1	40.5	150.4	271.4
Sierra Leone	13.1	15.1	8.8	26.3	23.9	(9.1)
<b>Total Ilmenite</b>	<b>82.2</b>	<b>108.9</b>	<b>106.7</b>	<b>125.0</b>	<b>215.4</b>	<b>72.3</b>
<b>TOTAL MINERAL SANDS PRODUCTION</b>	<b>251.3</b>	<b>261.5</b>	<b>241.9</b>	<b>448.5</b>	<b>503.2</b>	<b>12.2</b>

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

## WEIGHTED AVERAGE RECEIVED PRICES

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

	1 <sup>st</sup> half 2019	2 <sup>nd</sup> half 2019	1 <sup>st</sup> half 2020
<i>US\$/tonne FOB</i>			
Zircon Premium and Standard	1,522	1,446	1,354
Zircon (all products, including zircon in concentrate) <sup>1</sup>	1,465	1,299	1,265
Rutile (excluding HYTI) <sup>2</sup>	1,108	1,167	1,246
Synthetic rutile	Refer Note 3	Refer Note 3	Refer Note 3

Notes:

1. Zircon prices reflect the weighted average price for zircon premium, zircon standard and zircon-in-concentrate. The prices for each product vary considerably, as does the mix of such products sold period to period. In the first half of 2020 the split of zircon sand and concentrate by zircon sand-equivalent was approximately: 80%:20% (2019 full year: 70%:30%).
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%.
3. Iluka's synthetic rutile sales are 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.

**OPERATING MINES PHYSICAL QUARTERLY DATA**  
**3 Months to 30 June 2020**

	Jacinth- Ambrosia / Mid west	Cataby / South west	Australia Total	Sierra Leone	Group Total
<b>Mining</b>					
Overburden moved kbcm	921	3,545	4,466	169	4,635
Ore mined kt	2,665	3,811	6,476	2,899	9,374
Ore treated grade HM %	4.7%	6.6%	5.6%	3.3%	4.0%
Ore treated grade VHM %	4.3%	5.5%	4.9%	2.2%	4.1%
<b>Concentrating</b>					
HMC produced kt	109.4	148.1	257.5	68.1	325.6
VHM produced kt	98.5	131.0	229.5	41.5	271.0
VHM in HMC assemblage %	90.0%	88.4%	89.1%	61.0%	83.2%
Zircon	53.9%	11.6%	29.6%	3.8%	24.2%
Rutile	7.8%	7.2%	7.5%	42.6%	14.8%
Ilmenite	28.3%	69.6%	52.0%	14.6%	44.2%
<b>Processing</b>					
HMC processed kt	56.9	110.3	167.2	67.0	234.2
Finished product <sup>1</sup> kt					
Zircon	29.3	12.8	42.1	-	42.1
Rutile	4.0	5.0	8.9	25.8	34.7
Ilmenite (saleable/upgradeable)	15.8	82.1	97.8	8.8	106.6
Synthetic rutile produced kt	-	58.3	58.3	-	58.3

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

**OPERATING MINES PHYSICAL YEAR TO DATE DATA**  
**6 Months to 30 June 2020**

	Jacinth- Ambrosia / Mid west	Cataby / South west	Australia Total	Sierra Leone	Group Total
<b>Mining</b>					
Overburden moved kbcm	2,238	6,400	8,638	169	8,807
Ore mined kt	5,168	7,678	12,846	5,662	18,508
Ore treated grade HM %	4.3%	6.2%	5.2%	3.3%	3.6%
Ore treated grade VHM %	3.9%	5.1%	4.5%	2.4%	3.8%
<b>Concentrating</b>					
HMC produced kt	184.1	263.6	447.8	153.3	601.1
VHM produced kt	162.7	230.5	393.2	99.0	492.3
VHM in HMC assemblage %	88.4%	87.4%	87.8%	64.6%	81.9%
Zircon	52.6%	11.2%	28.2%	4.2%	22.1%
Rutile	8.0%	7.1%	7.4%	43.7%	16.7%
Ilmenite	27.8%	69.2%	52.2%	16.7%	43.1%
<b>Processing</b>					
HMC processed kt	148.0	219.3	367.3	152.8	520.1
Finished product <sup>1</sup> kt					
Zircon	68.8	23.4	92.2	-	92.2
Rutile	10.4	11.8	22.2	61.8	84.0
Ilmenite (saleable/upgradeable)	41.1	150.4	191.5	23.9	215.4
Synthetic rutile produced kt	-	111.6	111.6	-	111.6

**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 treated grade HM %** refers to percentage of heavy mineral (HM) in the ore processed through the mining unit (MU).

**Ore treated grade VHM %** refers to percentage of valuable heavy mineral (VHM) - titanium dioxide (rutile and ilmenite) and zircon in the ore processed through the mining unit (MU).

**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** provides an indication of the finished production (zircon, rutile, ilmenite) 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%.

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

Typically, 1 tonne of upgradeable ilmenite will produce between 0.56 and 0.60 tonnes of synthetic rutile. 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.

# PRODUCTION SUMMARIES

