

# ILUKA RESOURCES KEY PHYSICAL & FINANCIAL PARAMETERS 2016

19 February 2016

This document provides an indicative guide to key physical and financial parameters expected for the Iluka business in the 2016 financial year.

The information is provided to assist sophisticated investors with the modelling of the company, but should not be relied upon as a predictor of future performance.

This information is based on Iluka forecasts and as such is subject to variation related to, but not restricted to, economic, market demand/supply and competitive factors.

Iluka has also provided some supplementary information to assist with modelling, including an explanation of cost of goods sold (COGS) and inventory value.

Iluka does not undertake to update this information regularly in part or whole, but can be expected to comment on any material variations. Iluka does not provide price forecasts.

The following excludes the Mining Area C iron ore royalty. In 2015, Mining Area C contributed \$61 million EBIT.

The current guidance parameters supersede all previous key physical and financial parameters.

Supplementary information contained in the appendices to this document includes:

Appendix 1	Cost of Goods Sold and Inventory Methodology
Appendix 2	Production and Cost Trends
Appendix 3	Production Settings
Appendix 4	Historical Production, Sales and Prices
Appendix 5	Operating Mine – Physical Data

#### [Disclaimer – Forward Looking Statements](#)

This briefing paper contains information which is based on projected and/or estimated expectations, assumptions and outcomes.

These forward-looking statements are not guarantees or predictions of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the company's control, and which may cause actual results to differ from those expressed in the statements contained in this release. Factors that could cause actual results or performance to differ materially from those expressed or implied in the forward-looking statements include, but are not limited to potential changes in:

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

While Iluka has prepared this information based on its current knowledge and understanding and in good faith, there are risks and uncertainties involved which could cause results to differ from projections. Iluka shall not be liable for the correctness and/or accuracy of the information nor any differences between the information provided and actual outcomes, and furthermore reserves the right to change its projections from time to time. Iluka does not undertake to update the projections provided in this document on a regular basis.

All currency is in nominal Australian dollar terms unless stated differently.

## Iluka Physical Trends

Production (kt)	2015	2016 Guidance	Commentary 2016 vs 2015
Zircon	389	~ 350	<b>Production settings are dependent on market demand conditions and can be adjusted upwards or downwards dependent on market conditions, cash cost and inventory monetisation considerations.</b> Lower planned production in 2016. This mainly reflects no production from Virginia, which was idled in December 2015 (2015 production: 37kt).
Rutile	136	~110	In the Murray Basin, HMC inventory will continue to be progressively drawn down and final product "allocated" until the next planned development.
Synthetic rutile (SR)	165	~200	Full year of production from SR kiln 2 compared with 9 months of production in 2015 (kiln recommenced production in April 2015).
<b>Total Z/R/SR</b>	<b>690</b>	<b>~660</b>	
Ilmenite	466	Not guided	Ilmenite produced can be sold directly, and some can be used as a feed source for synthetic rutile production. Ilmenite production in 2016 will be less than in 2015 with cessation of mining and processing activities in Virginia (2015 – 145kt of ilmenite production).

Sales Volumes (kt)	2015	2016 Guidance	Commentary 2016 vs 2015
Zircon	346	Not guided	Iluka expects that <b>aggregate Z/R/SR sales</b> may exceed 2016 aggregate Z/R/SR production (660kt). 2016 will have a full year of synthetic rutile sales. A major proportion of Iluka's 2016 SR and rutile sales (which includes a lower titanium dioxide content HyTi product) are underpinned by commercial arrangements as to volume and price. Iluka expects a higher proportion of standard grade and zircon in concentrate in the 2016 zircon sales profile. Ilmenite sales will be lower in 2016, given no production from Virginia and use of the majority of chloride ilmenite as a feed for synthetic rutile production.
Rutile	134		
Synthetic rutile	171		
<b>Total Z/R/SR</b>	<b>651</b>		
Ilmenite	300		

In addition to the main mineral sands products of zircon, rutile and synthetic rutile, Iluka also generates revenue from, and incurs production costs related to, ilmenite and by-product streams, including iron concentrate and activated carbon. In 2015, this ilmenite and other revenue was \$80 million.

## Iluka Financial Trends

	2015	2016 Guidance	Commentary 2016 vs 2015
<b>Cash Costs A\$m</b>			
Production cash costs Z/R/SR (excluding ilmenite concentrate and by-products)	385	~290	Cash costs of production expected to decrease by ~25% with the cessation of mining and processing in Virginia, no Murray Basin mining in 2016 and the suspension of mining and concentrating activity at Jacinth-Ambrosia, partially offset by increased SR costs (full year of production). (Refer to Note 1).
Ilmenite concentrate and by-product costs	8	~10	Marginally higher costs associated with expected higher South West Western Australian iron concentrate movements. Costs also involve handling and shipment of activated carbon, which results in a co-product credit for the production of synthetic rutile.
<b>Total Cash Costs of Production</b>	<b>393</b>	<b>~300</b>	
Other cash costs	164	~190	Non-production costs associated with exploration, marketing, royalties and port costs, major projects and corporate costs are expected to be lower in aggregate than 2015 although other cash costs in total are higher, associated primarily with ~\$35 million for the further development of innovative solutions to certain mineral sands mining and processing technical challenges. Refer Note 2 for elements of this item.
Restructure, idle capacity, rehabilitation & holding costs	41	~65	Higher – associated with suspension of mining and concentrating at Jacinth-Ambrosia.
<b>Total Cash Costs</b>	<b>598</b>	<b>~555</b>	
<b>Unit Cash Costs (A\$/t) of Z/R/SR produced, (excluding by-product costs)</b>	558	~440	Lower unit costs (down ~20%) reflecting cessation of Woornack, Rownack, Pirro (Murray Basin), Virginia operations, and Jacinth-Ambrosia offset by a full year of SR costs and Tutunup South mining costs.
<b>Unit cost of goods sold per tonne of Z/R/SR (\$/t)</b>	780	Not guided	Cost of goods sold (COGS) expected to be in line with 2015, but COGS is sales mix dependent. Refer Appendix 1 for an explanation of COGS and inventory movement.
<b>Non Cash Costs</b>			
Depreciation & amortisation	132	~75	Mainly associated with lower mining activity in 2016. Refer Note 6
Other	45	~15	Rehabilitation unwind and other finance costs – refer Note 7. 2015 amount included an additional \$25 million for an accounting adjustment associated with a reduction in discount rate – refer ASX Release 16 December 2015.
<b>Capital Expenditure</b>	66	~90	Includes investment in Metalysis and land purchases in US. Iluka's corporate plan forecast, including Balranald, Cataby and 2 <sup>nd</sup> kiln reactivation incorporates an average annual capital expenditure (2016-2020) of \$150 to \$175 million per annum. This excludes any potential M&A activity and also any execute capital for Puttalam, Sri Lanka, US projects, and Jacinth-Ambrosia satellite deposits. These are not sufficiently advanced to include in corporate plan forecasts at this time. The level of capital expenditure in any given year will be determined by final project scope decisions, approvals and the phasing of expenditure.

While free cash flow is not guided, free cash flow generation in 2016 is expected to be strongly weighted to the second half, due to:

- timing of planned expenditure (first half weighted in terms of cash cost of production associated with mining and concentrating activities at Jacinth-Ambrosia and ~\$35 million expenditure, also in the first half, for the further development of innovative solutions to certain mineral sands mining and processing technical challenges); and
- sales revenue expected to be second half weighted as usual.

## Notes to Key Physical and Financial Parameters

### Note 1 – Product cash costs of production include the following main components:

- mining and concentrating costs; transport of heavy mineral concentrate; mineral separation; synthetic rutile production and costs for externally purchased ilmenite and production overheads. This category excludes Australian State Government royalties.
- cost of goods sold (COGS) per tonne is not guided, however, in 2015, COGS per tonne of Z/R/SR was \$780, down from \$862 per tonne in 2014. COGS comprise the cash costs of production, excluding by-product costs, plus depreciation and amortisation (D&A), plus or minus inventory movement. Refer Appendix 1.

### Note 2 - Other cash costs include:

- Australian State Government royalties - \$21 million in 2015. In 2016, royalty payments are expected to increase, associated with an increase in the royalty rate applicable to Jacinth-Ambrosia under the State Agreement, as well as higher royalties associated with increased sales.
- marketing and selling costs - including marketing overhead costs and port costs - \$32 million in 2015;
- exploration expenditure expensed and resources development expenditure - \$58 million in 2015, of which \$27 million was exploration expenditure and \$31 million related to innovation and technical development work, including, for example, work related to the Tapira mineralisation, ASSR and fine minerals commercialisation; and
- corporate and support costs of \$53 million in 2015 (this includes expenses associated with Kenmare Resources Ltd acquisition planning and due diligence).

### Note 3 - Restructure costs/plant idling costs

- 2015 costs of \$38 million relating to ongoing costs for operations and assets that have been idled and the restructure costs associated with the Virginia operation and Murray Basin mining operations cessation.
- Of the assets idle in 2015, three of the synthetic rutile kilns are expected to remain idle throughout 2016 while the largest synthetic rutile kiln, SR2, recommenced production in April 2015. Mining also recommenced at Tutunup South in March 2015. Refer Note 6 (d) of Notes to Iluka's Financial Statements in 2015 Annual Report. Refer Iluka ASX Release – 16 February 2016.

### Note 4 - Rehabilitation and holding costs for closed sites

- Refer Note 3 (ii) of Notes to Iluka's Financial Statements of the 2015 Annual Report and Note 6 (e) Annual Report for a description of this item.

### Note 5 – Interest and Tax

- net interest expenses of \$11 million in 2015.
- the majority of Iluka's taxable income is Australian based with a prevailing corporate tax rate of 30 per cent. Tax expense in 2015 was \$33.1 million and Iluka's effective tax rate was 38.2 per cent. This is above the Australian corporate tax rate due to minimal tax benefits recognised for the US losses of \$35.5 million incurred during 2015 combined with an increase in non-deductible expenses, specifically in relation to overseas exploration and Kenmare Resources Plc transaction costs.
- Iluka's effective tax rate is expected to be in the mid 30s level in 2016 reflecting some of the factors referred to above.
- Iluka is in a tax paying position in Australia and as such generates franking credits from the payment of tax. Franking credit balance at 31 December 2015 available for future years was \$103 million (includes payment of the 2015 final dividend).

### Note 6 – Depreciation and Amortisation

- depreciation and amortisation of most assets is charged over the life of the relevant mine or asset, whichever is the shorter.

### Note 7 - Other non-cash costs

- includes the unwind of the discount on rehabilitation provisions which are recognised as a liability at net present value which is reported as a finance cost. In 2015, other non-cash costs were \$45 million, inclusive of a \$25 million non-cash, pre-tax charge announced on 16 December 2015, associated with a reduction to Australian Bond rate level used as the discount rate for calculating the Australian rehabilitation provision for closed sites. Level in 2016 is expected to revert to pre 2015 historical levels.

### **Mining Area C Iron Ore Royalty**

The Key Physical and Financial Parameters information relates to Iluka's mineral sands business. It does not include the royalty from Iluka's ownership of BHP Billiton's Mining Area C iron ore royalty. This royalty contributed \$61 million EBIT in 2015. The royalty is based on 1.232% of A\$ revenues from Mining Area C and an A\$1 million one-off capacity payment for each 1 million tonne increase in production.

## APPENDIX 1 COST OF GOODS SOLD AND INVENTORY METHODOLOGY

To assist in modelling inventory movement, the following information is provided:

1. an explanation of costs of goods sold (COGS) and inventory movements on the profit or loss and balance sheet, with an illustrative schematic provided;
2. based on 2015 disclosed financials, a reconciliation of Mineral Sands EBIT using two different methodologies: COGS derived from cash cost of production plus depreciation and amortisation (D&A) plus/minus inventory movement; and COGS derived from unit COGS x sales volumes of zircon/rutile/synthetic rutile.

### Cost of Goods Sold

Mineral sands earnings reflect the difference between revenue and COGS, rather than the cash costs of production and depreciation incurred in a period. COGS is the inventory value of each tonne of finished product sold. All production is added to inventory at cost, which includes direct costs and an appropriate portion of fixed and variable overhead expenditure, including depreciation and amortisation, allocated to each product on the basis of relative sales value.

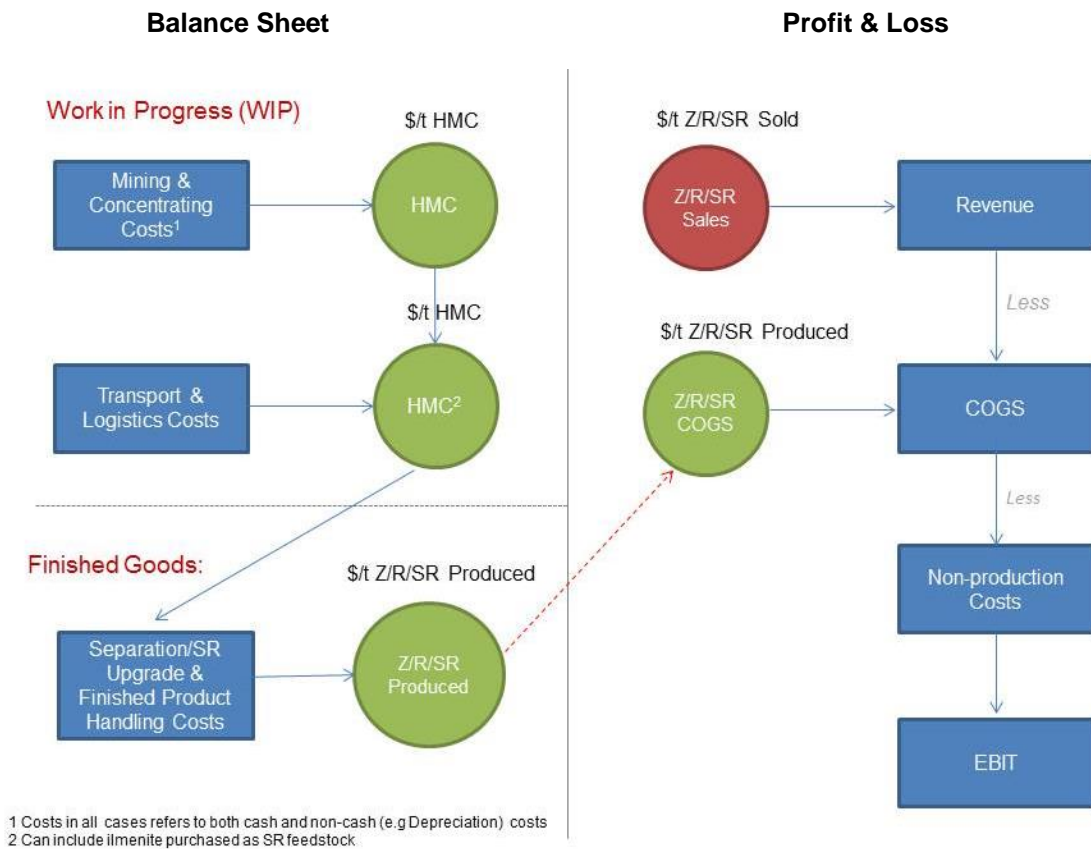
The inventory value recognised as COGS for each tonne of finished product sold is the weighted average value per tonne for the stockpile from which the product is sold.

Iluka provides guidance on cash and non-cash costs of production, as well as finished goods production volumes, which in periods of low and stable inventory levels will **be a surrogate for COGS**. However, in periods of draw-down from large inventory balances, the **unit cost of inventory drawn has a more significant influence on COGS**, than current year production costs.

Production settings are provided for 2016 in Appendix 3. There will be no heavy mineral concentrate (HMC) production in Murray Basin and the US, and HMC production will be suspended at Jacinth-Ambrosia from 16 April 2016. As a result, HMC inventory will be drawn down during 2016 as it is processed into finished products through the mineral separation plants and not replenished from mining.

Iluka's COGS was \$780 per tonne (cash and non-cash costs) of Z/R/SR in 2015. 2016 COGS is expected to be in line with 2015, but is dependent on sales mix and can, as such, vary. In periods of large expected movements in inventory, it can be simpler to model COGS on a unit basis, with the unit COGS (\$/t) multiplied by the expected Z/R/SR sales volumes (kt).

The diagram below illustrates how costs of production (both cash and non-cash) are built up on the balance sheet in both work in progress and finished goods inventory and then transferred to the profit or loss (cost of goods sold) as finished product is sold.



**Notes:**

- Production costs (cash costs and depreciation) are allocated to inventory on the balance sheet as incurred
- Inventory is held at various stages through the production process and accumulates further cost at each stage
- Typical inventory stages (and type of costs accumulated):
  - Work in progress (WIP): ore mined (overburden and ore mining costs)
  - WIP: HMC at mine (ore mined costs plus concentrating costs)
  - WIP: HMC at mineral separation plants (ore and concentrating previously allocated, plus transport costs)
  - Finished products: Z/R/SR/l (all prior HMC, plus separation and finished product handling costs)
- For each tonne of finished product sold, the average cost to produce a tonne (COGS as \$/t) is charged to the P&L
- The annual balance sheet inventory movement is therefore:
  - annual production costs incurred to produce new WIP and finished products; less
  - production costs of finished products sold transferred from inventory to the P&L (COGS)
- The annual cost of goods sold in the P&L represents the unit cost of products sold drawn from inventory, multiplied by the sales volume
- Non-production costs (e.g. corporate, exploration, idle capacity and restructure) are expensed to P&L as incurred

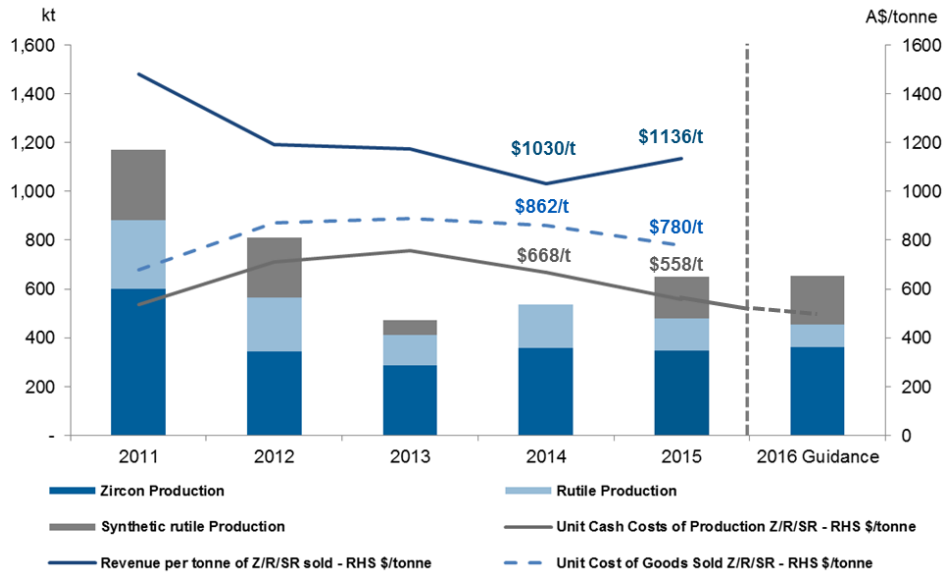




## APPENDIX 2 PRODUCTION AND COST TRENDS

The chart below illustrates historical production, total cash costs of production and unit cash costs, with indicative 2016 trends based on guidance parameters provided above.

**Figure 1. Cash Production Costs and Unit Cash Costs/Unit Cost of Goods Sold – 2011 – 2015**



## APPENDIX 3 PRODUCTION SETTINGS

The following chart sets out Iluka's production settings in 2015, along with expected production settings in 2016. Iluka's approach is to flex production in light of market demand.

	2015	2016
<b>Jacinth-Ambrosia mining South Australia</b>	100% utilisation	Mining and concentrating activities to be suspended from 16 April for a period of 18 – 24 months; Jacinth-Ambrosia concentrate will continue to be processed in Victoria and WA. Refer ASX Release 16 February 2016
<b>Murray Basin mining Victoria</b>	WRP mine idled March	Concentrate continues to be processed
<b>Tutunup South mining Western Australia</b>	Recommended March after being idled in June 2013	100% utilisation
<b>Hamilton mineral separation plant (MSP) Victoria</b>	~ 78% utilisation	~60% utilisation Murray Basin and Jacinth-Ambrosia concentrate
<b>Narngulu MSP Western Australia</b>	~60% utilisation	~50% utilisation Jacinth-Ambrosia concentrate
<b>SR kiln 2</b>	Recommended April after being idled in June 2013	100% utilisation Ilmenite feed source from Tutunup South, Jacinth-Ambrosia, Murray Basin and an external source
<b>3 other SR kilns</b>	Idled in previous periods	Idle. SR1 located in the South West likely to be the next kiln recommissioned, dependent on market conditions.
<b>US Mining (Virginia)</b>	Concord recommenced July. Both Concord & Brink concluded in December	Idle. Iluka has two well evaluated mineral sands deposits in the US. Mining and processing can be re-activated dependent on appropriate commercial arrangements.
<b>Stony Creek MSP, Virginia</b>	~70% utilisation	Idle – able to be re-activated.

2016 operating regime dependent on market conditions.

## APPENDIX 4 HISTORICAL PRODUCTION, SALES AND PRICES

### 2010 - 2015 Historical Iluka Production Volumes

Annual Volume (kt)	2010	2011	2012	2013	2014	2015
Zircon	413	601	343	285	357	389
Rutile	250	281	220	127	177	136
Synthetic rutile	347	286	248	59	-	165
<b>Total Z/R/SR</b>	<b>1,010</b>	<b>1,168</b>	<b>811</b>	<b>471</b>	<b>534</b>	<b>690</b>
Ilmenite	685	662	674	584	365	466

### 2010 - 2015 Historical Iluka Sales Volumes

Annual Volume (kt)	2010	2011	2012	2013	2014	2015
Zircon	479	514	214	370	352	346
Rutile	240	266	105	168	182	134
Synthetic rutile	362	258	170	46	82	171
<b>Total Z/R/SR</b>	<b>1,081</b>	<b>1,038</b>	<b>489</b>	<b>584</b>	<b>616</b>	<b>651</b>
Ilmenite	374	571	443	337	317	300

### 2010 – 2015 Iluka Weighted Average Prices

The following table provides weighted average received prices for Iluka's main products on an annual basis between 2010 – 2015. Prices are influenced by product specifications and quality, lot size sold, contractual and customer arrangements.

Iluka Price US\$/tonne FOB	2010	2011	2012	2013	2014	2015
Zircon	880	1,886	2,080	1,150	1,033	986
Rutile	550	1,174	2,464	1,069	777	721
Synthetic rutile	450	878	1,771	1,150	750	Not disclosed
Average AUD/USD (cents)	92.0	103.2	103.6	96.8	90.3	75.2

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 case of rutile, Iluka sells a lower titanium dioxide product, HyTi.

## APPENDIX 5 OPERATING MINES – PHYSICAL DATA – 2010 - 2015

The following table provides a summary of Iluka's physical flow – from mining to processing of finished products over the period 2010 to 2015. The data in this table relating to the operating basins (Jacinth-Ambrosia, Murray Basin etc.) are for the 2015 year. Group Total data is shown in the right hand columns. The data will enable a view of operational settings as Iluka has flexed production over this period of time, including reducing level of synthetic rutile production..

	Jacinth-Ambrosia	Murray Basin	Western Australia	Australia Total	Virginia	Group Total 2010	Group Total 2011	Group Total 2012	Group Total 2013	Group Total 2014	Group Total 2015
<b>Mining</b>											
Overburden Moved kbcm	1,197	2,171	262	3,630	-	12,467.8	19,521.0	13,342.8	11,874.3	16,306	3,630
Ore Mined kt	7,933	567	1,815	10,315	3,500	26,282.4	23,404.4	29,738.2	19,300.3	14,689	13,815
Ore Grade HM %	7.5	38.9	11.2	9.9	6.7	12.4	13.6	7.2	10.7	13.5	9.1
VHM Grade %	6.7	32.2	10.1	8.7	5.6	6.4	7.5	4.9	9.3	12.1	7.9
<b>Concentrating</b>											
HMC Produced kt	563	145	182	890	247	2,056.3	2,121.6	1,529.7	1,538.3	1,305	1,137
VHM Produced kt	501	127	166	794	184	1,610.5	1,690.1	1,213.9	1,326.7	1,135	978
VHM in HMC Assemblage %	89.0	87.9	91.1	89.3	74.3	78.3	79.7	79.4	86.2	87.0	86.0
Zircon	59.1	22.9	16.7	44.5	15.6	30.9	38.0	26.9	34.9	36.7	38.2
Rutile	6.2	40.3	5.3	11.6	0.0	14.8	14.4	13.5	14.2	21.6	9.0
Ilmenite	23.7	24.7	69	33.2	58.7	34.8	26.3	36.8	36.1	28.6	38.7
<b>Processing (HMC to finished product at a mineral separation plant)</b>											
HMC Processed kt	496	250	203	949	257	1,845.4	1,937.6	1,468.1	1,044.2	968.0	1,206
<b>Finished product kt</b>											
Zircon	249.7	54.3	47.3	351.3	37.3	412.9	601.5	343.2	285.1	357.6	388.6
Rutile	31.1	96.6	8.8	136.5	-	250.1	281.3	220.3	127.0	177.2	136.5
Ilmenite (saleable/upgradeable)	117.5	90.0	113.5	321.0	145.1	684.9	661.6	674.1	584.5	365.4	466.1
<b>Synthetic Rutile Produced kt</b>			164.9	164.9		347.5	285.7	248.3	59.0	-	164.9

An explanation of the Iluka's physical flow information can be obtained from Iluka's Briefing Paper - Iluka Physical Flow Information on the company's website [www.iluka.com](http://www.iluka.com), under Investor & Media, Briefing Papers & Presentations, 2010. 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 the ore mined.

**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 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 produced.

**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.

**Finished product** provides an indication of the finished production (zircon, rutile, ilmenite) attributable to various mining operations. The difference between the VHM produced and finished product reflects differences in the amount of HMC produced and processed in a given period and finished product recovery losses at the processing stage.

**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.

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