



**ILUKA**

# Your Partner For Chloride Feedstocks

Matthew Blackwell, Head of Marketing and Procurement

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All figures are expressed in Australian dollars unless stated otherwise.



## Strong Market Fundamentals

Mineral sands demand linked to urbanisation, rising living standards, increasing array of applications

## Quality Mineral Sands Assets

Australia and Sierra Leone operations  
Product mix weighted to premium zircon and high grade titanium dioxide

## Project Pipeline

Sustaining and growth projects in Australia, Sierra Leone and Sri Lanka

## Value Driven Marketing Model

Direct customer relationships  
Price driven by value in use  
Focussed on sustainable pricing

## Capital Discipline Framework

Strong balance sheet, disciplined capital allocation  
Focus on shareholder returns via dividend framework

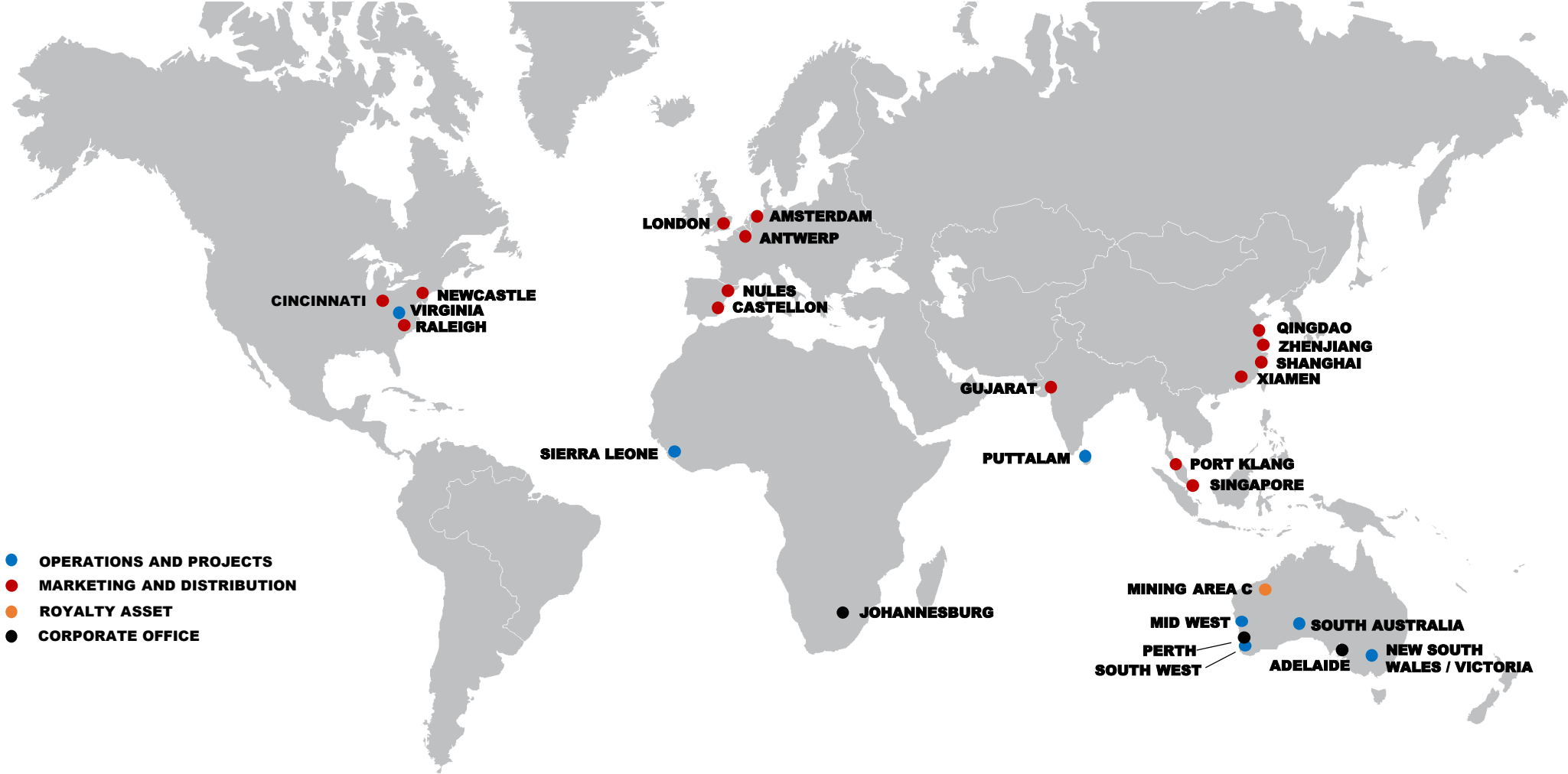
## World-class Iron Ore Royalty

Royalty stream from BHP's Mining Area C hub in Western Australia  
Growth from BHP's South Flank development



# Iluka's Asset Portfolio

60 years experience in mineral sands exploration, project development, mining, processing and marketing



## Cataby, Western Australia



- Large chloride ilmenite rich deposit
- 150km north of Perth
- Ilmenite to feed synthetic rutile kiln
- Synthetic rutile offtake contracts underpin returns
- Significant zircon and rutile production
- 8.5 year mine life, with potential 4 year extension

## Jacinth-Ambrosia, South Australia



- World's largest zircon mine
- Discovered in 2004, mining commenced 2010
- Iluka's major source of zircon production
- Mining completing at Jacinth deposit in 2H19
- Move to Ambrosia deposit accelerated to smooth production
- Studies commenced for potential satellite mine at Atacama

## Sierra Rutile, Sierra Leone



- Began operations 1960s
- Acquired by Iluka in December 2016
- World's largest rutile mine
- Large, long life operations (~20 years)
- Two mining areas: Lanti and Gangama
- Planned closure of dredge operation completed Q1 2019

# Iluka's Marketing Model of Value Creation



# High Grade Titanium Feedstock Advantage



- Natural rutile and synthetic rutile have a higher titanium grade than other feedstocks
- Iluka's high grade products considered to have high 'value in use' for pigment producers

## High grade feedstock advantages in pigment production:

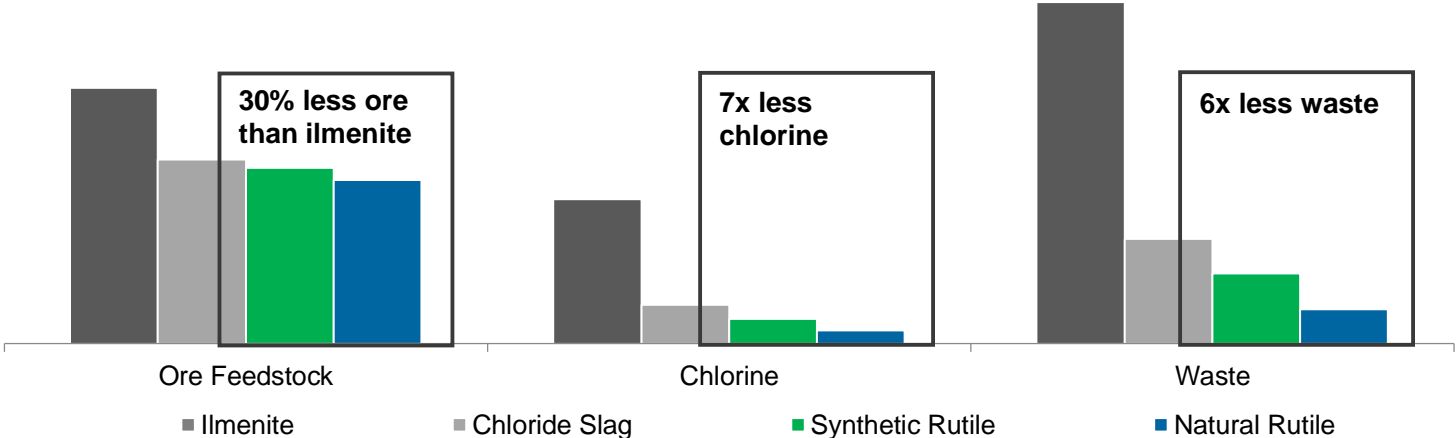
**Lower ore tonnes required**

**Lower chlorine input**

**Lower waste generation**

Environmental and cost benefits

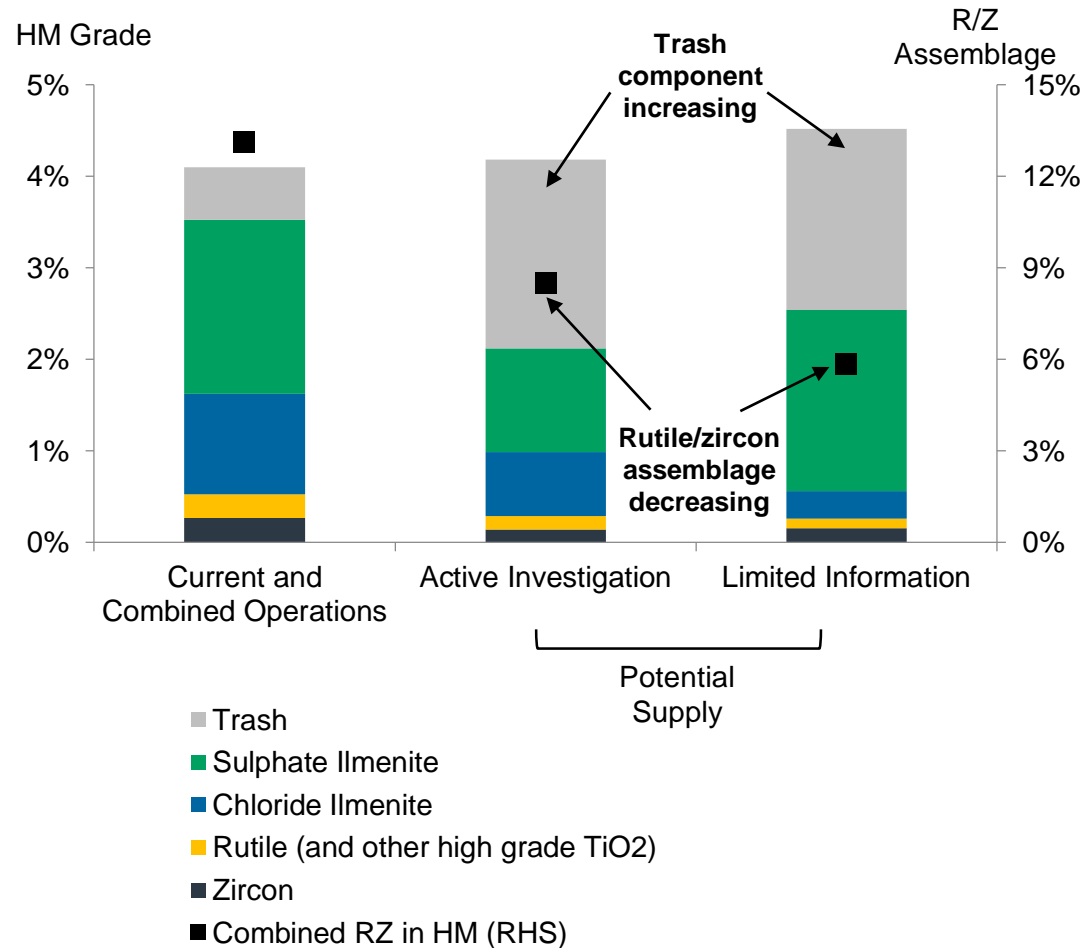
Input and outputs based on feedstock of pigment plant, per tonne of pigment



# Valuable Heavy Mineral Decline



## Assemblage of Global Mineral Sands Resources



Source: Iluka and company reports, 2016

### The mineral sands industry challenge:

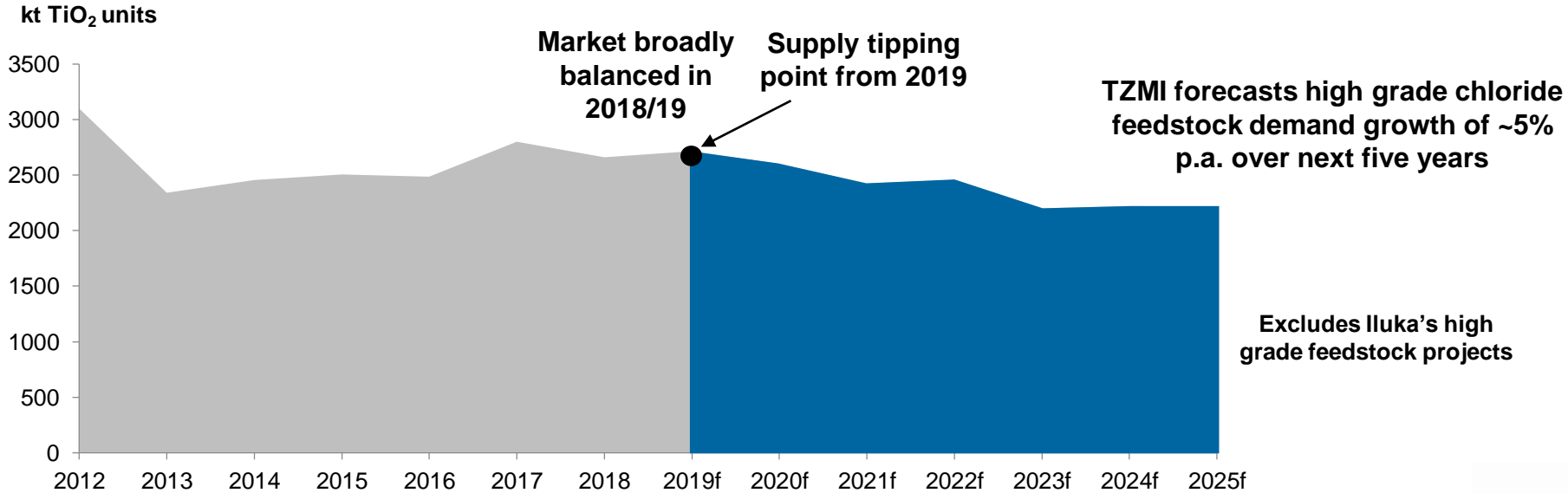
1. Need technical solutions for unconventional ore bodies and product specifications
2. Exploration to find better ore bodies
3. Achieving prices that generate sufficient return on investment but not so high as to incentivise substitution and thrifting



# High Grade Titanium Deficit

Absent a supply side response, High Grade Chloride feedstock production starts to decrease from 2019....

## Global High Grade Chloride Titanium Feedstocks Supply Outlook\*



\* High Grade Chloride Feedstocks include Rutile, Synthetic Rutile, Chloride Slag and UGS.  
Production outlook only includes new projects with funding approval.  
Assumes capacity utilisation rates at upgrading facilities held constant.  
Source: Iluka and TZMI



# High Grade Titanium Pricing Dynamics

Recent decoupling of rutile and pigment prices due to supply tightness in very high grade feedstock market

1. Pigment and rutile prices have historically moved together with lag of 6 to 12 months

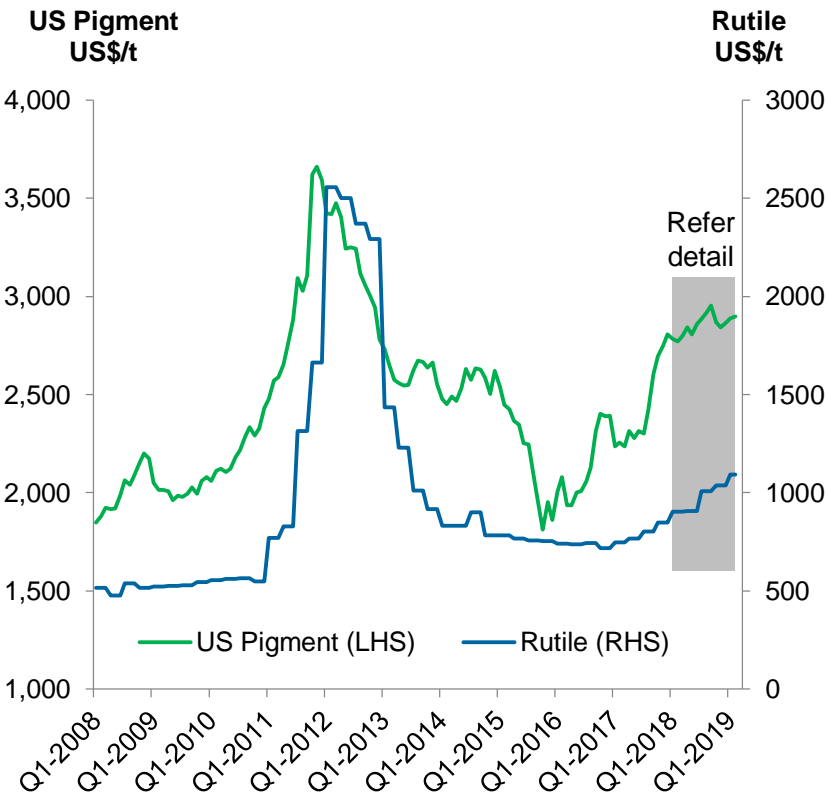


2. Pigment price growth eased in 2018 while rutile price growth continued with further growth expected

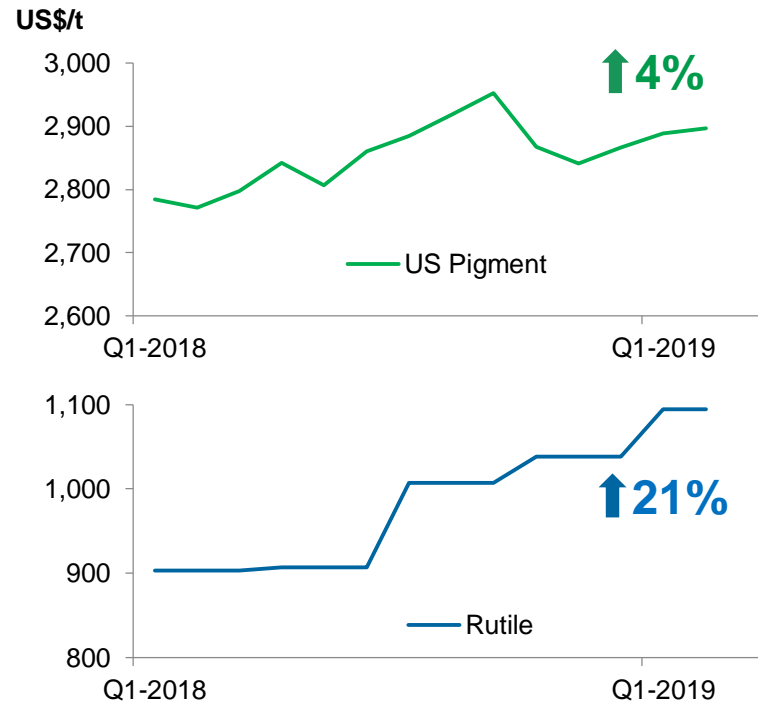


3. Rutile market dynamics no longer mimic other titanium feedstocks - instead pricing driven by rutile supply tightness

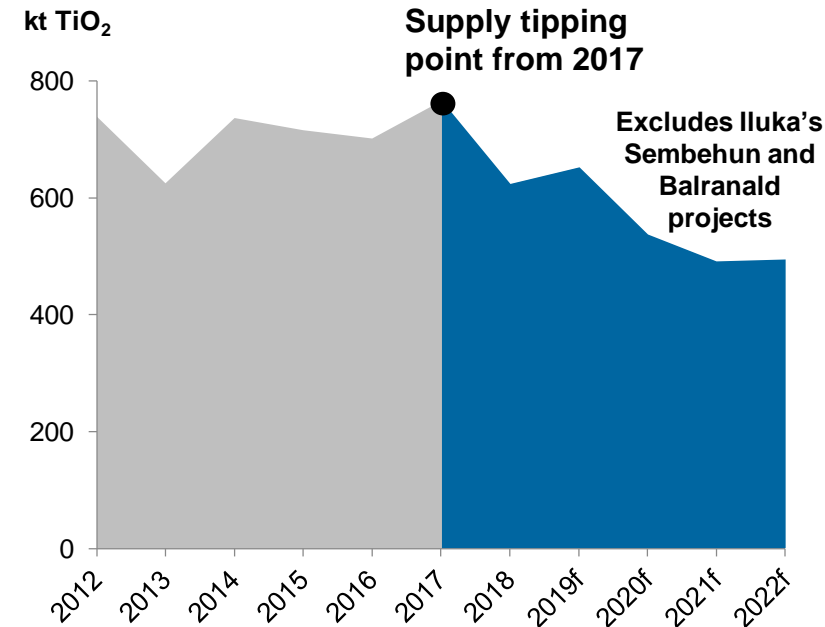
Rutile and US Pigment Prices, from 2008



Rutile and US Pigment Prices, from 2018



Global Rutile Supply Outlook



Source: Iluka and TZMI



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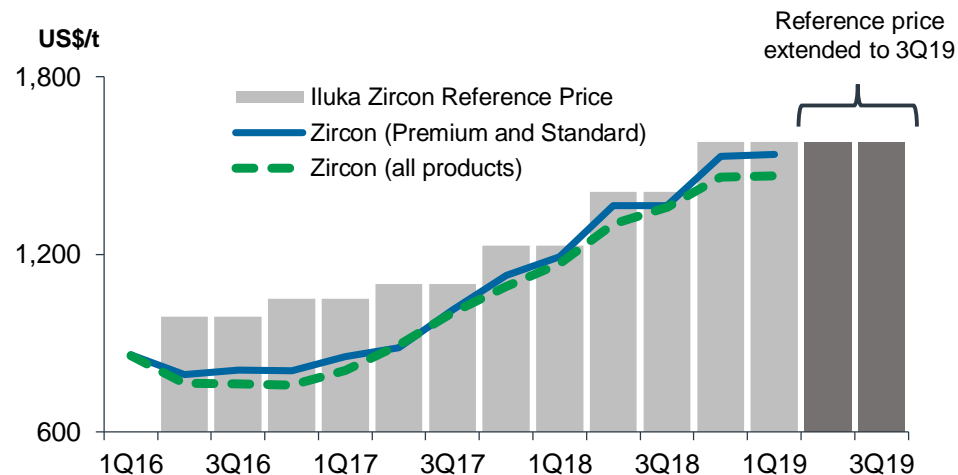
## Sustainable pricing based on value in use

### Zircon Pricing Model

Iluka introduced Zircon Reference Price in 2016

- Provides transparency for customers
- Actual price paid function of location, quantity, quality, purchase history etc

Iluka's Zircon Reference Price has delivered sustainable price growth



Notes: Zircon Reference Price is based on a 2 tonne bag of Zircon Premium, DAT, ex-China warehouse. Price differential between Zircon (Premium and Standard) and Zircon (all products) varies based on the price of each product and the mix of products sold in each period.

### Titanium Pricing Model

Titanium feedstock prices negotiated with each customer

- Pricing based on specifications, relative economic value for receiving plant

High grade feedstock has natural advantage in production processes and Iluka's main products have high 'value in use'

- Lower transportation costs per Ti unit
- Less waste creation = lower disposal costs
- Less consumables = lower costs

Innovative contracting mechanisms to provide certainty for customers and protect Iluka's margins





### Ambrosia, South Australia

Mine move to Ambrosia brought forward to 2019 to smooth zircon production  
Construction and earth works progressing

### Wimmera, Victoria

Zircon and rare earth project  
Feasibility study commenced  
Test pit completed and customer samples prepared

### Atacama, South Australia

Satellite deposit to existing J-A operation  
Feasibility study commenced  
Potential to add material zircon production

Other

### Eneabba Mineral Sands Recovery, Western Australia

Monazite-rich stockpile from historic mining  
Feasibility study commenced  
Simple process proposed with low capital expenditure



### Lanti and Gangama expansions, Sierra Leone

Doubling of mining capacity at Lanti and Gangama operations  
Both scheduled for commissioning in 2019

### Sembehun, Sierra Leone

Expansion to new deposit  
Currently undergoing value optimisation work  
Optimisation studies completing H2 2019

### SR1 restart, Western Australia

Scoping study commenced  
Potential for ~120ktpa of synthetic rutile  
Subject to appropriate commercial arrangements

### Balranald, New South Wales

Rutile and zircon rich deposits  
Development of innovative underground mining method via directional drilling  
Final field trial subject to Board decision in H2 2019



Wimmera, Victoria

## Collaborating with our customers we have re-set the contracting landscape

- Moved away from the value-destructive 'cap and collar' agreements of the past
- Focused on mechanisms that move with the market
- Customer support for our new approach is yielding benefits for both contracting parties
  - Reduced volatility in pricing
  - Better line of sight to pricing for both Iluka and our customers
  - Fairness in pricing to ensure customers are not disadvantaged with Iluka's products appropriately valued
  - Security of supply to customers with guarantees of offtake for Iluka
- Iluka now has higher confidence on project returns which supports our investment decisions

## Many Chinese titanium companies still buy on short term agreements

- Buying on short term agreements
  - Does not provide security of supply
  - Does not provide best prices over the long term

## Adopting new approaches will support your growth...

- Longer term contracting results in a Joint Commitment
  - Supplier assured of sales and Buyer gets security of supply
  - Supports better planning for both companies
- On average prices should be better
  - At times prices will be higher or lower than spot

## We seek a shared commitment to the future

- Feedstock production is complicated
  - Difficult to find quality deposits
  - Capital intensive to develop
- Iluka is committed to this market and investing for the future
- Iluka can provide the high-quality, high  $\text{TiO}_2$  products you need to grow

**Let us be your partner in chloride feedstocks and we grow together!**



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# Your Partner For Chloride Feedstocks

Matthew Blackwell, Head of Marketing and Procurement





ILUKA

# 澳禄卡--您在氯化钛白原料方面的合作伙伴

Matthew Blackwell, 市场营销和采购部负责人

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除非另有说明，所有数值单位均为澳元。

## 强大的市场基础

矿产需求与城镇化、不断提升的生活标准、不断增加的应用相关联

## 优质矿砂资产

澳大利亚及塞拉利昂的经营状况  
偏重优质锆石和高级二氧化钛的产品组合

## 项目管道

澳大利亚、塞拉利昂和斯里兰卡的可持续性项目及生长型项目

## 受价值驱动的营销模型

直接客户关系  
受使用价值驱动的价格  
关注可持续性定价

## 资本自律框架

强大的资产负债表及符合自律的资本分配  
通过股息框架关注利益相关者回报

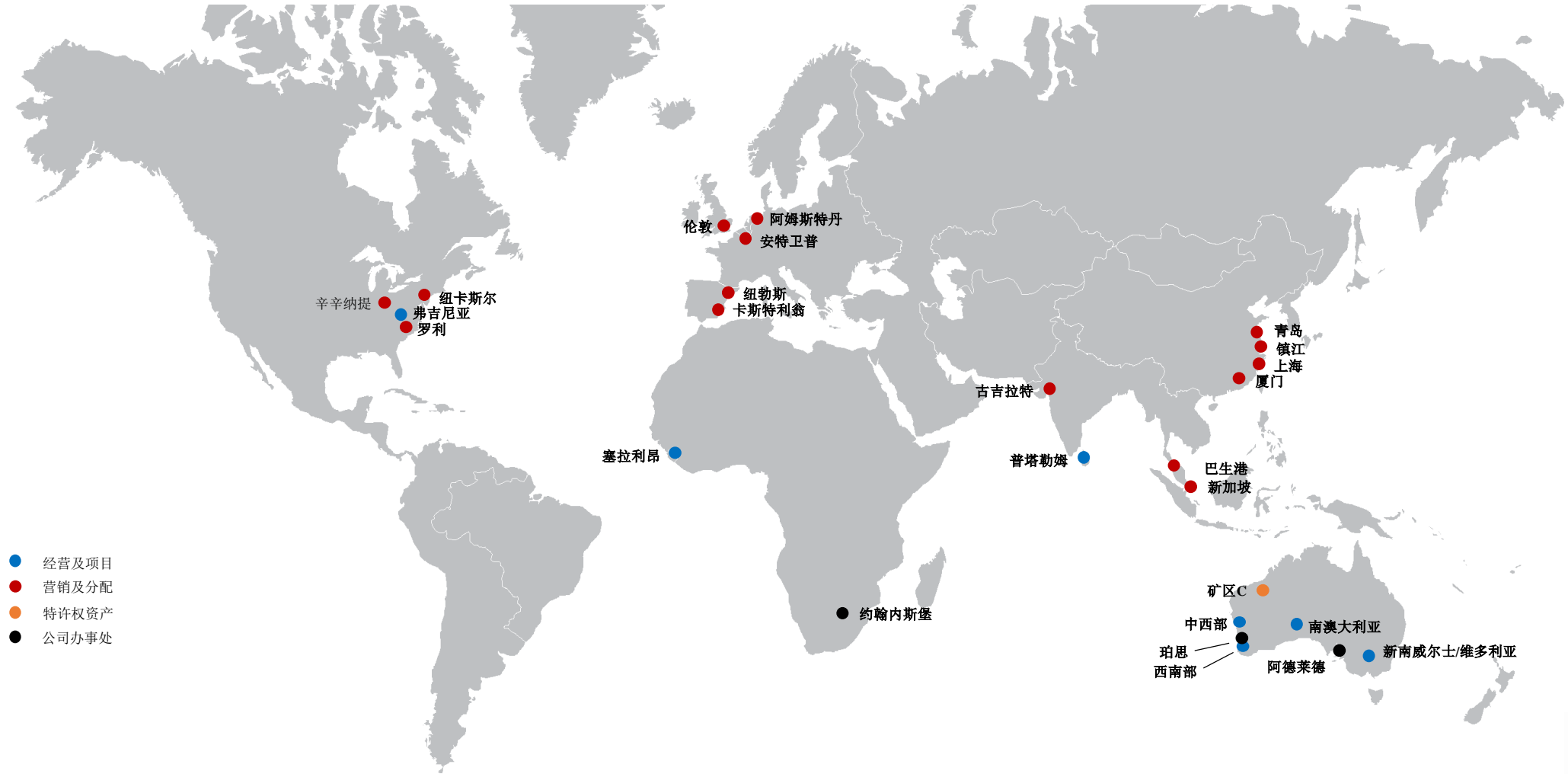
## 世界级铁矿特许权使用费

特许权使用费来自必和必拓公司（BHP）在西澳大利亚的C矿区中心  
BHP南翼开发项目的发展



# 澳禄卡的资产组合

在矿山开采、项目开发、采矿、加工及市场营销方面积累60年的经验



- 经营及项目
- 营销及分配
- 特许权资产
- 公司办事处



## Cataby项目, 西澳大利亚



- 大型氯钛铁矿床
- 距离珀思150km
- 钛铁矿用于供应人造金红石窑
- 人造金红石承购合同作为回报基础
- 重要锆石和金红石生产
- 采矿时间为8.5年,可续展4年

## Jacinth-Ambrosia矿山, 南澳大利亚

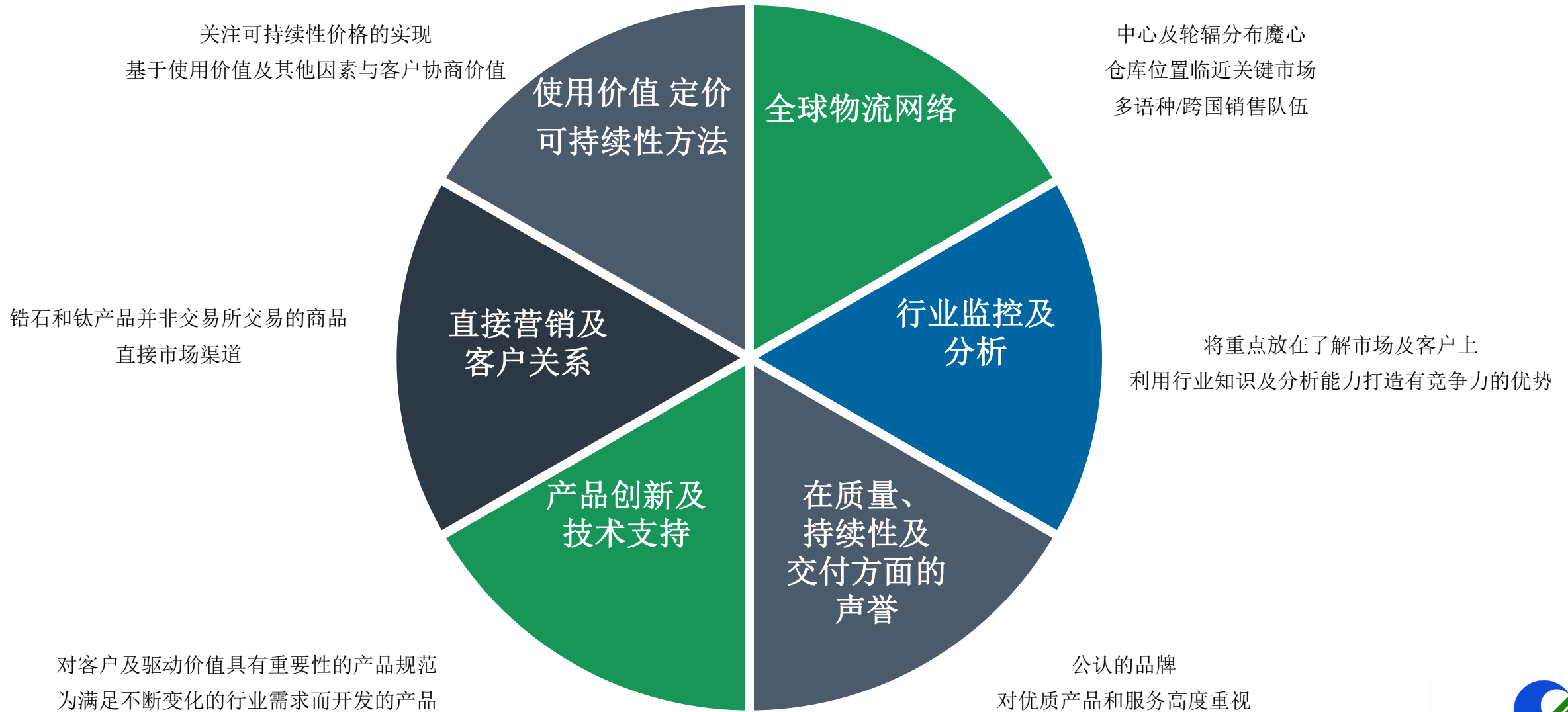


- 世界上最大的锆石矿山
- 2004年发现该矿山,2010年开始采矿活动
- 澳禄卡锆石生产的主要来源
- 2019年下半年完成Jacinth矿床的采矿工作
- 加快向Ambrosia矿床的转移,以保证顺利生产
- 在Atacama开始潜在卫生矿山研究

## Sierra Rutile, 塞拉利昂



- 20世纪60年代开始经营活动
- 由澳禄卡于2016年12月收购
- 世界上最大的金红石矿山
- 大规模长期经营(约20年)
- 两大矿区: Lanti和Gangama
- 计划于2019年第1季度完成挖泥作业



# 高品质钛原料的优势

- 天然金红石和人造金红石的钛品位比其他原料要高
- 澳禄卡的高品位产品被认为对颜料生产商具有很高的“使用价值”

## 颜料生产中的高品质钛原料的优势

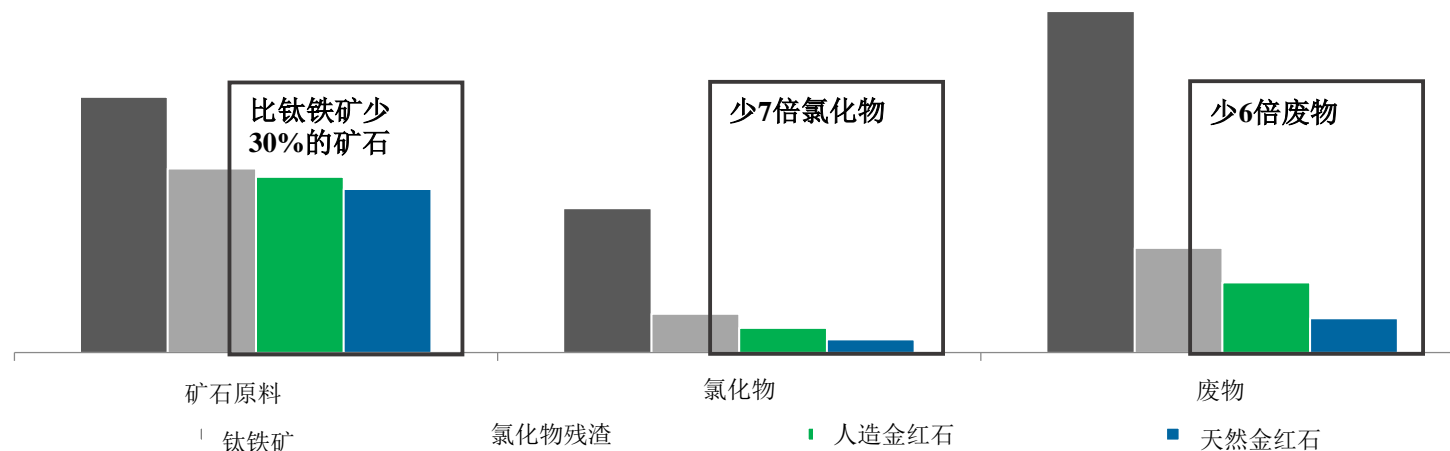
需要较低的矿石吨位

较低的氯化物输入

较低的废物产生

环境及成本利益

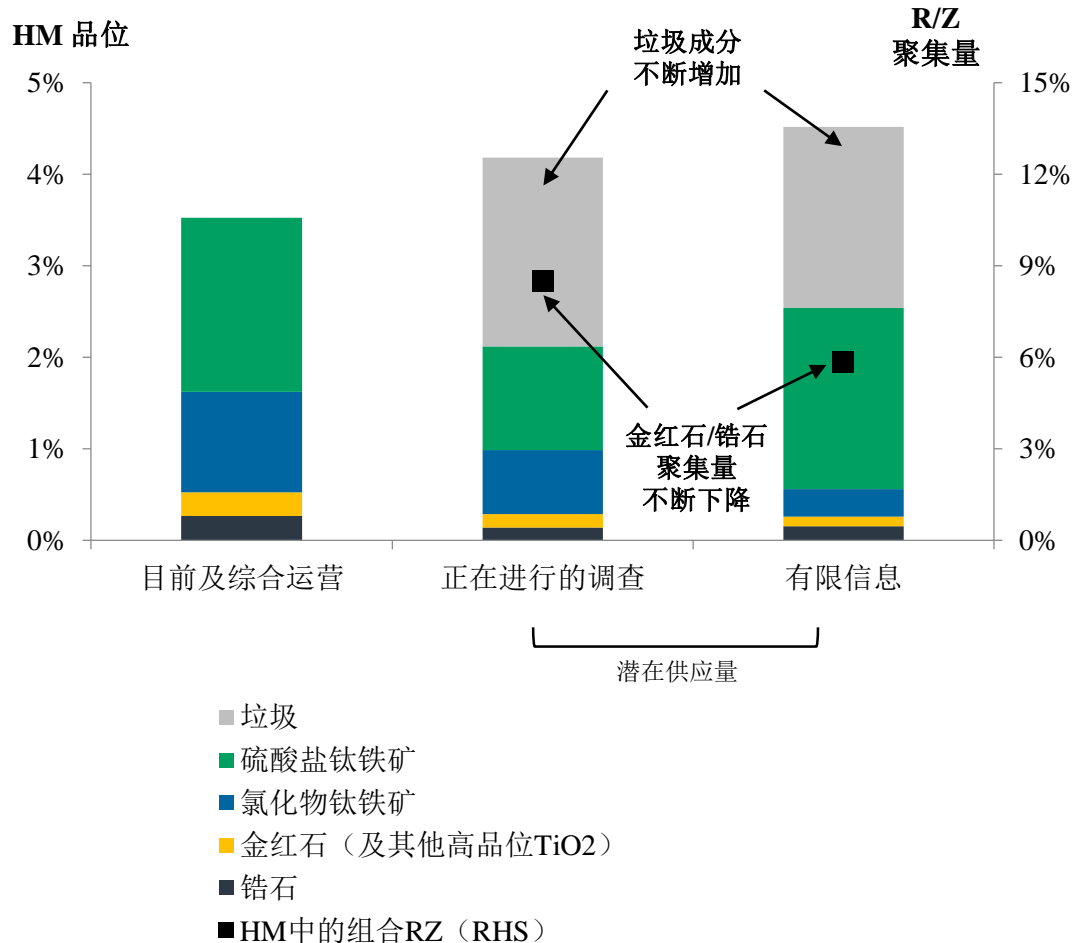
基于颜料工厂原料的输入及输出，按颜料吨数



# 重砂矿有价值物含量下降



## 全球矿砂资源聚集



来源：2016年澳禄卡及公司报告

### 矿砂工业遇到的问题：

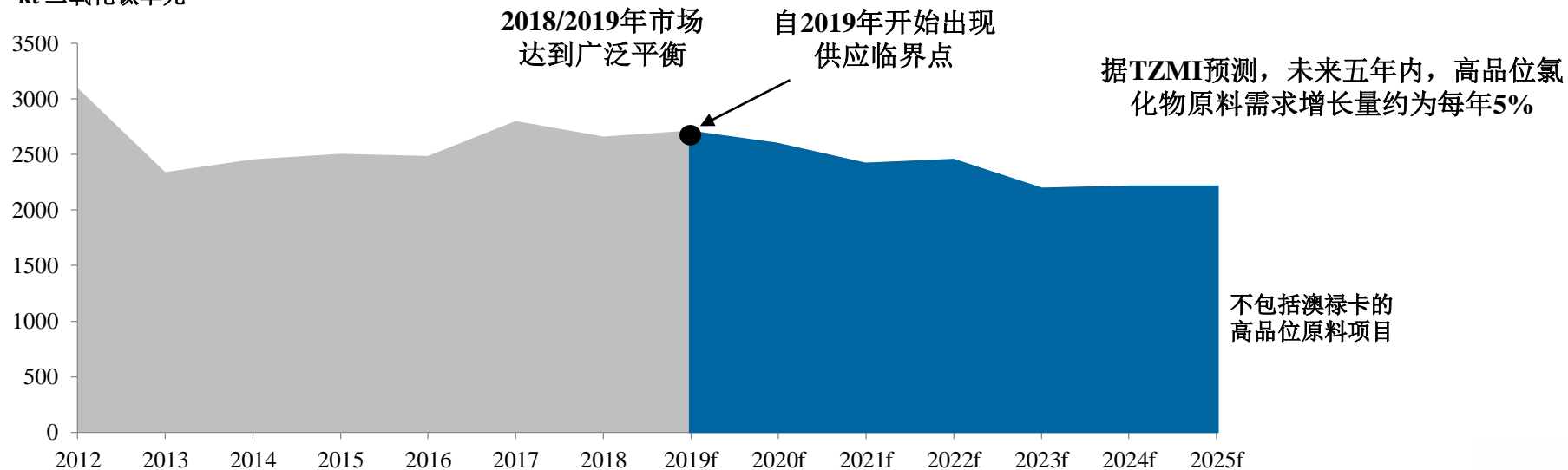
1. 需要非传统矿体技术解决方案及产品规范
2. 探索发现更好的矿体
3. 实现可获得投资回报保证的营收但同时又不至于引发对产品造成替代和更换



在供应侧响应不足的情况下，高品质氯化物原料生产量自2019年开始下降.....

## 全球高品位氯化物钛铁矿原料供应愿景\*

kt 二氧化钛单元



高品位氯化物原料包括金红石、人造金红石、氯化物残渣及UGS。

生产愿景仅涉及获得资金审批的新项目。

假设升级设施内的生产能力使用率保持恒定。

来源：澳禄卡和TZMI

最近，由于较好品位原料市场的供应量紧张，金红石和钛白粉价格出现了脱钩现象

1.过去，颜料及金红石价格一直在发生浮动，滞后6至12个月



2.2018年，颜料价格增长速度放缓，而金红石价格增长速度一直持续，预计未来仍会增长

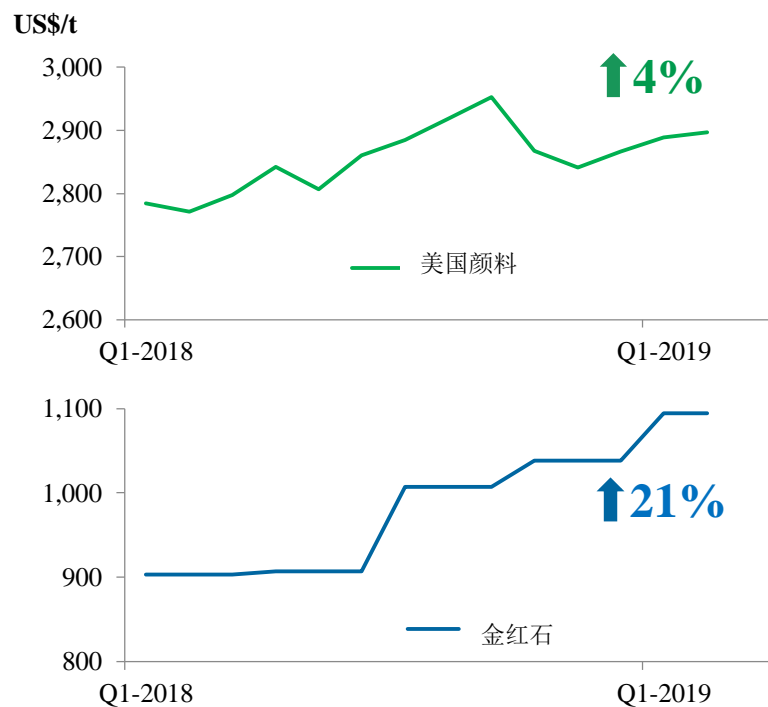


3.金红石市场动态不像其他钛原料-与之相反的是，其定价受金红石供应量紧张的驱动

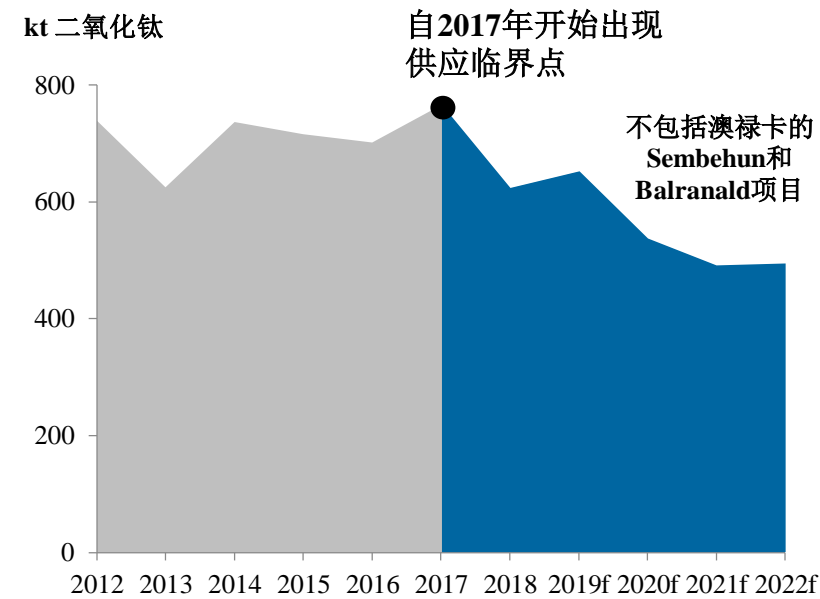
从2008年开始的美国颜料价格



从2018年开始的美国颜料价格



全球金红石供应量愿景



来源：澳禄卡和TZMI



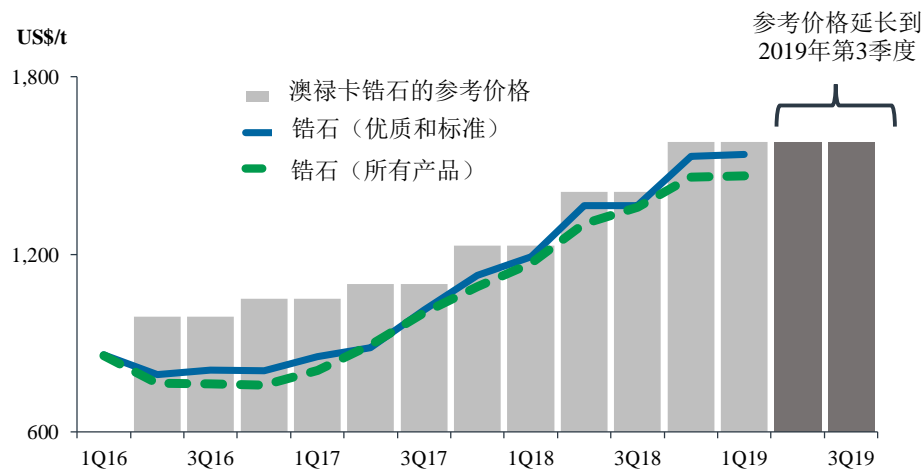
## 基于使用价值的可持续性定价

### 锆英砂定价模型

澳禄卡于2016年引入锆石参考价格

- 对客户透明
- 实际支付价格，位置、数量、质量及采购历史等的功能

澳禄卡的锆石参考价格已得到可持续性价格增长



注：锆石的参考价格基于一袋（2吨）优质锆石，在终点地交货，按中国仓库的交货价格。根据每个期间内出售的每种产品及产品组合，及锆石（优质和标准）及锆石（所有产品）之间的价差存在差异。

### 钛原料定价模型

与每位客户协商钛原料价格

- 基于接收厂规范、相关经济价值定价
- 高品位原料在生产流程方面拥有天然优势，澳禄卡主产品的“使用价值”较高
- 每个钛单元的运输费用较低
- 较少的废物产生量=较低的处置成本
- 较少的耗材=较低的成本

创新的合约机制可实现客户的确定性，保护澳禄卡的利润率

## 锆

### Ambrosia, 南澳大利亚

提出于2019年将矿山转移到 Ambrosia, 以保证锆石顺利生产  
施工和土方工程正在进行中

### Wimmera, 维多利亚

锆石及稀土项目  
开始可行性研究  
完成测试坑, 准备客户样品

### Atacama, 南澳大利亚

现有J-A运营的卫星矿床  
开始可行性研究  
增加材料锆石生产的可能性

## 其他

### Eneabba矿砂回收, 西澳大利亚

富含独居石的历史采矿原料  
开始可行性研究  
提出简易流程, 资本支出低

## 钛

### Lanti和Gangama扩展 塞拉利昂

Lanti和Gangama运营地的采矿能力翻番  
两地均安排在2019年调试

### Sembehun, 塞拉利昂

扩展到新矿床  
目前正在开展价值优化工作  
2019年下半年开展优化研究

### 重新启动SR1, 西澳大利亚

开始范围研究  
约120ktpa人造金红石的储藏量  
受相应的商务安排的约束

### Balranald, 新南威尔士

富含金红石和锆石的矿床  
编写通过直接钻探的创新地下采矿法  
受2019年下半年董事会决定的最终现场试验

## 与我们重新设置合同前景的客户协商

- 从过去破坏价值的“看涨期权和期权上下线”协议中转移
- 关注随市场而动的机制
- 对我们新方法提供的客户支持可对合同双方产生利益
  - 减少价格浮动
  - 为澳禄卡及我们的客户定价提供更好的视线
  - 定价合理，确保客户在有效评估的澳禄卡产品方面不会处于不利地位
  - 保证对客户的供货安全，向澳禄卡提供承购保证
- 澳禄卡对项目汇报信心较大，这可对我们的投资决定提供支持

## 许多中国公司仍按短期协议采购

- 按短期协议采购
  - 不提供供货保证
  - 不提供长期最优价格

## 采用新方法可对您公司的发展提供可持续支持.....

- 长期合约制可带来共同承诺
  - 供应商保证销售量，买方获得供货保证
  - 对两家公司提供更好的规划支持
- 平均价格应该更优
  - 价格始终高于或低于现货价格

## 我们寻求对未来的共同承诺

- 原料生产变复杂
  - 难于找到优质矿床
  - 资本集中开发
- 澳禄卡致力于该市场及为未来投资
- 澳禄卡可提供您发展所需的含二氧化钛高的优质产品

让我们在氯化钛白原料方面携起手来，共同成长！



ILUKA

# 您在氯化物原料方面的合作伙伴

Matthew Blackwell, 市场营销和采购部负责人