

MINE →  
INTEGRATE →  
TRANSFORM

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## FORWARD LOOKING STATEMENTS

Certain information contained in this report, including any information on MDL's plans or future financial or operating performance and other statements that express management's expectations or estimates of future performance, constitute forward-looking statements.

Such statements are based on a number of estimates and assumptions that, while considered reasonable by management at the time, are subject to significant business, economic and competitive uncertainties. MDL cautions that such statements involve known and unknown risks, uncertainties and other factors that may cause the actual financial results, performance or achievements of MDL to be materially different from the Company's estimated future results, performance or achievements expressed or implied by those forward-looking statements. These factors include the inherent risks involved in mining and mineral processing operations, exploration and development of mineral properties, changes in economic conditions, changes in the worldwide price of zircon, ilmenite and other key inputs, changes in the regulatory environment and other government actions, changes in mine plans and other factors, such as business and operational risk management, many of which are beyond the control of MDL.

Except as required by applicable regulations or by law, MDL does not undertake any obligation to publicly update, review or release any revisions to any forward-looking statements to reflect new information, future events or circumstances after the date of this report.

Nothing in this report should be construed as either an offer to sell or a solicitation to buy or sell MDL securities.

Expressed in **United States dollars** unless otherwise stated.

## CONSECUTIVE RECORD

quarterly production of heavy mineral concentrate



## INTEGRATION OF TTI & GCO MARKS THE REALISATION OF THE TIZIR STRATEGIC VISION

## POSITIVE EBITDA

at GCO over the final five months of 2015



## DREDGE achieving design throughput rates

towards the end of 2015

## ON BUDGET COMPLETION

of TTI furnace reline and capacity expansion project



## SUCCESSFUL RESTART

of upgraded TTI operations in December 2015



TTI received a grant of

**\$ 14.2** MILLION

from ENOVA for development of carbon reduction technology

TiZir produced **644.2kt** product during the year:

**539.8kt** titanium feedstocks

**45.2kt** zircon

**59.2kt** high-purity pig iron

## 'Shareholders will now realise the benefits of synergies generated by the integration of GCO & TTI.'



Fellow Shareholders,

There is no doubt that 2015 was a tough year for those of us invested in the resources sector. In what was largely a successful year for your Company, where a number of key milestones were achieved, it was also very frustrating and disappointing not to see this success translated into an improved share price performance for shareholders.

The 2015 year will be remembered as the year we realised the original strategic vision of the TiZir joint venture, via the successful integration of the Grande Côte mineral sands operation ('GCO') in Senegal and the TiZir Titanium & Iron ilmenite upgrading facility ('TTI') in Tyssedal, Norway. Shareholders will now realise the benefits of synergies generated by the integration of these two producing assets.

In light of the current resources market, this strategy will best position your Company to be competitive during the cyclical downturn with significant leverage to the upside when commodity prices recover. Specific advantages include:

- security of offtake for GCO ilmenite, limiting exposure to the lower value, more volatile ilmenite market
- ensuring security of ilmenite supply for TTI
- production of chloride titanium feedstocks while retaining production flexibility to maximise returns in the face of potential changes to market dynamics
- considerable logistical advantages

Whilst the ramp-up of GCO encountered normal commissioning issues during the first half of the year, the implementation of a number of optimisation projects resulted in numerous production records being achieved, including:

- HMC production steadily increasing during 2015 with 188.7kt produced in Q4 2015

- HMC production for a month (August) of 80.2kt
- the dredge reaching design throughput rates towards the end of 2015

GCO also achieved a positive EBITDA for the final five months of 2015 – an excellent result given the near-record low commodity prices.

GCO's skilled management team is now focusing on maintaining elevated throughput rates whilst also increasing the efficiency of both the Wet Concentrator Plant and Mineral Separation Plant thereby enabling sustainable and cost effective production.

The successful completion of the furnace reline and capacity expansion project was an outstanding achievement by the dedicated and highly skilled team at TTI. A project of this scale and complexity has an infinite number of risks that need to be appropriately mitigated and I sincerely thank all involved for their diligence and professionalism.

TTI was also awarded a grant of NOK 122.0 million (US\$14.2 million) from ENOVA (a Norwegian Government environmental agency) for research and development of carbon emission reduction technology, which forms part of the furnace reline and capacity expansion project. This funding will enable TTI to move further towards its goal of reducing carbon emissions.

In December, TiZir and its joint venture partners successfully negotiated with bondholders a number of revisions to the Bond Agreement that governs TiZir's senior secured bonds. As a consequence of these negotiations, TiZir now has the capacity to 'cure' all of the covenants attaching to the bond (should such a cure be necessary) during the period leading up to the maturity of the bond in September 2017. This cure capacity should provide comfort to MDL shareholders, given it creates improved optionality with respect to the operation and management of the bond covenants.

The relationship with our joint venture partner ERAMET is very strong. We continue to work in close collaboration with ERAMET and TiZir management to ensure ongoing optimisation of the joint venture. ERAMET recently assisted MDL with an amount of short-term funding on terms specified in the Shareholders' Agreement that provide significant optionality for your Company at this time in the commodity cycle.

We are in the process of transitioning the management team at your Company. During 2015, we successfully put in place a new management team who have hit the ground running and are performing well. Collectively, the appointments of Rob Sennitt (Chief

Executive Officer), Jozsef Patarica (Chief Operating Officer) and Greg Bell (Chief Financial Officer) bring important expertise and great energy to develop the next stage of the evolution of your Company.

It is my intention to step down from my role as Executive Chairman at the 2016 Annual General Meeting to become non-executive Chairman. David Isles, a long-serving director and major contributor to your Company's successes over the years, will also retire at the upcoming AGM. Further, it is the Board's intention to appoint Rob Sennitt to the position of Managing Director.

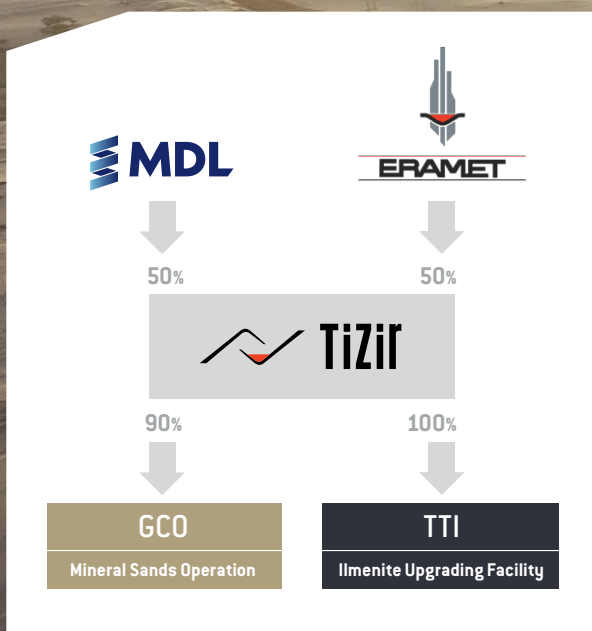
**Our new management team will focus on MDL's key objectives for 2016, which include:**

- **GCO building on the commissioning successes of 2015 through a focus on operational utilisation and sustainable throughput rates, whilst also increasing efficiencies with respect to mining recoveries and processing yields to bolster its capacity to operate as a Tier 1 asset**
- **successful ramp-up of TTI operations to produce chloride titanium slag and continue production of high-purity pig iron**
- **continued cost reduction initiatives to enhance product competitiveness throughout the group**

Your Company recorded an underlying loss for the year of \$27.2 million, primarily as a result of operating losses incurred at GCO as operations continued to ramp-up, along with a small operating loss at TTI as a result of the planned shutdown for the completion of the furnace reline and capacity expansion project. Unfortunately, as with many of our mining industry peers, the decline in commodity prices has meant it is difficult to support current balance sheet values of assets. As such, MDL has recognised a non-cash impairment loss of \$26.7 million against its investment in TiZir for the year ended 31 December 2015. Your Company's share of this impairment amounted to \$12.0 million and is the primary reason for the after tax loss of \$42.0 million for MDL. While this result is disappointing, the assets that have been impaired primarily relate to costs incurred at the mine development phase of the project.

I would like to take this opportunity to thank you – our valued shareholders and other key stakeholders – for your continued support.

**Nic Limb**  
Chairman



## WHY MDL?

- Well located, high quality assets
- Vertical integration drives cost efficiencies
- Significant leverage to improved markets
- Strategic market positioning
- Operational flexibility
- Partnership with ERAMET, a major global mining & smelting player

MDL is a growing ASX listed mineral sands producer through its 50% equity interest in TiZir Limited ('TiZir').

The TiZir joint venture comprises two integrated, producing assets – GCO & TTI. The joint venture benefits from MDL's development expertise and mineral sands mining experience as well as ERAMET's broad expertise in mining, metallurgy, logistics, R&D and marketing.

## INTEGRATED ASSETS

GCO is a large-scale, cost competitive mineral sands operation that is fully integrated from mine-to-ship, using owned or controlled infrastructure.

GCO produces high-quality zircon and ilmenite as well as small amounts of rutile and leucoxene.

TTI upgrades GCO ilmenite to produce high-quality titanium feedstocks and high-purity pig iron.

TTI benefits from excellent logistics with respect to cheap & clean power access, year-round shipping capacity and customer proximity.

# MINE > INTEGRATE

## GCO

1

### WET MINING – DREDGE & FLOATING CONCENTRATOR

Moving through mobile coastal dunes, the dredge extracts ore from the front of the dredge pond and pumps sand and water to the floating wet concentrator plant which separates heavy mineral concentrate (HMC) from the lighter sand through a staged spiral gravity separation process.

2

### PROCESSING TO SEPARATE MINERALS

Within the Mineral Separation Plant (MSP), magnetic, electrostatic and gravity processes separate HMC into GCO's product streams: zircon, ilmenite, rutile and leucoxene.

3

### POWER

An on-site 36MW tri-fuel power station gives GCO security of power supply.

4

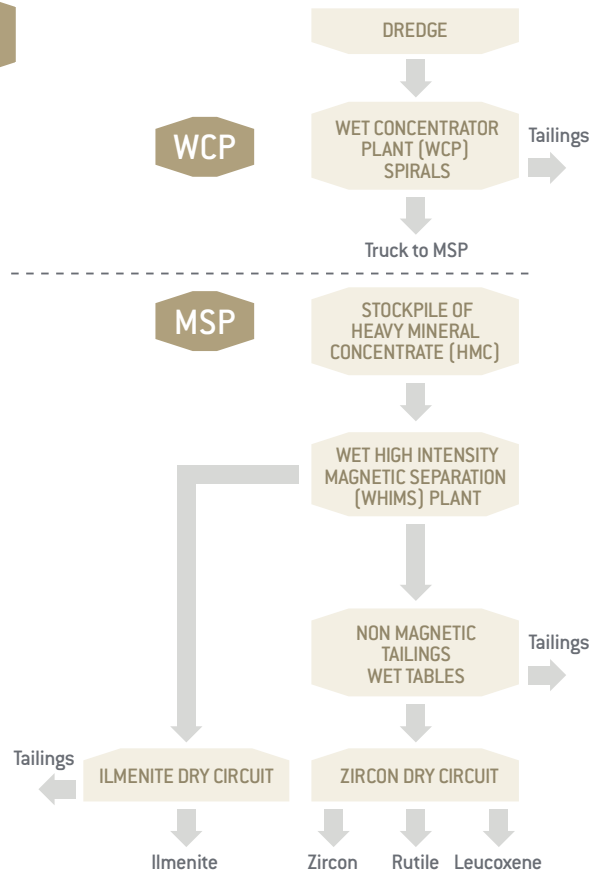
### RAIL

Using GCO's own locomotives and rolling stock, product is transported daily via GCO owned or controlled rail from the MSP to the port of Dakar.

5

### PORT & SHIPPING

GCO has its own warehousing and ship loading facilities as well as secure mole access at Dakar port. Zircon is shipped to global customers, while the majority of GCO's ilmenite is shipped to TTI for upgrading.



## TTI

6

### INPUT

GCO ilmenite is crushed in a ball mill, then filtered and pelletised.

7

### PRE-REDUCTION

In a rotary kiln the iron oxide is reduced within the pelletised ilmenite to achieve high metallisation of the iron.

8

### SMELTING

The material is smelted in an electric arc furnace to extract iron, with everything else reporting to the titanium rich slag.

9

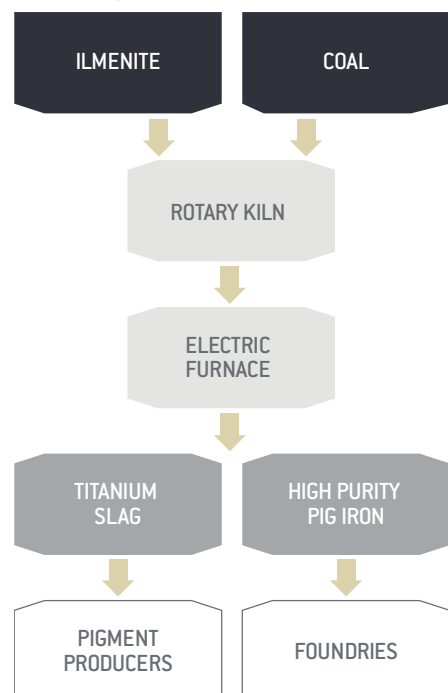
### OUTPUTS

The titanium slag and iron is processed to obtain the required quality specifications.

10

### CUSTOMERS

Titanium slag customers are primarily Western-based pigment producers, while a varied and large number of customers purchase TTI's high-purity pig iron.



# > TRANSFORM

Zircon and titanium feedstocks have physical and chemical properties which make them suitable for a wide range of industrial and domestic 'lifestyle' applications.

## PRODUCTS



### ZIRCON

- Chemically inert
- Provides strength, durability and bright white finishes
- Common end uses: ceramic tiles, sanitary ware, tableware, zirconium metals
- GCO zircon is of high quality



### TITANIUM MINERALS

- Includes ilmenite, leucoxene, rutile and titanium slag (collectively referred to as titanium feedstocks)
- Feedstocks are valued for their  $TiO_2$  content
- Most of the world's  $TiO_2$  is used to make white pigment
- Used in the manufacture of paint, plastics, paper, and titanium metal
- TTI upgrades GCO ilmenite to produce high-quality titanium slag



### HIGH-PURITY PIG IRON

- High tensile strength
- Also known as ductile or foundry iron
- TTI's pig iron is of high purity due to its low phosphorus and sulphur content
- Specialist end uses: windmills, automotive & engine parts, tools and heavy castings



Demand for mineral sands products generally correlates with GDP growth. Urbanisation, particularly in developing countries, is also a key demand driver.

## GCO PRODUCTION

**GCO continued its ramp-up throughout the reporting period with numerous operational records being achieved.**

Production was inhibited in 1H 2015 by unplanned electrical outages, tailings management and other routine commissioning issues. Completion of a number of discrete commissioning projects aimed at ensuring consistent throughput from the Wet Concentrator Plant ('WCP') and improved efficiencies and recoveries at both the WCP and Mineral Separation Plant ('MSP') resulted in a significant turnaround in operational results during 2H 2015. The Company seconded its Chief Operating Officer to work directly with GCO management on these commissioning projects.

On an overall basis, the dredge operated at 65.2% capacity throughput for the reporting period. December 2015 represented the best recorded month to date with a throughput capacity of 90% and significant periods where the WCP was operating at or above design expectations.

The improvement in the operational results at the WCP consequently led to record heavy mineral concentrate ('HMC') production in 2H 2015. The final five months of the year represented five of the best six months for HMC production at the operation, including a monthly record set in August of over 80.0kt. Further, the quarterly record for HMC production of 176.0kt set in the third quarter was surpassed by HMC production in the fourth quarter of 188.7kt.

The ramp-up of the MSP met expectations throughout the year as the Wet Plant and the Ilmenite Circuit of the Dry Plant continued to operate at design feed rates. Zircon production continued to improve with a number of initiatives in place to increase production further in 2016. On an overall basis, GCO produced 478.3kt of products which included 427.7kt of ilmenite.

## Significant turnaround in operational results

DURING 2H 2015

Final 5 months of the year represented:

## 5 of the BEST 6 months

FOR HMC PRODUCTION AT GCO

100% basis		CY 2015	CY 2014
<b>Mining</b>			
Ore mined	(kt)	34,759	14,263
Heavy mineral concentrate produced	(kt)	632.9	184.1
<b>Finished goods production</b>			
Titanium slag	(kt)	106.8	183.7
Ilmenite	(kt)	427.7	100.6
Zircon	(kt)	45.2	9.0
High-purity pig iron	(kt)	59.2	103.0
Rutile & Leucosene	(kt)	5.3	0.7

## TTI PRODUCTION

**Production at TTI for 2015 was significantly impacted by the furnace reline and capacity expansion project which was completed in 4Q 2015. During this period, there was no production at TTI.**

The key strategic rationale behind this project was for TTI to produce chloride feedstocks while retaining the production flexibility to maximise returns in the face of potential changes to market dynamics. In addition, the new roof on the furnace is anticipated to increase smelting capacity in the order of 15%.

There are a number of key advantages to the strategy of producing a chloride titanium slag in the current environment:

- Chloride slag generally sells at a premium to the sulphate slag previously produced by TTI
- GCO ilmenite is used in the production of chloride slag, allowing the generation of synergies from integrating GCO and TTI

Across the year:

## ACHIEVEMENT

OF NUMEROUS OPERATIONAL RECORDS

- Logistically, key customers for chloride slag are well located to the TTI production facility in Norway
- TTI's enhanced environmental credentials
- TTI retains the capacity to produce sulphate slag in response to market opportunities

In light of the current resources market, this strategy will best position MDL to be competitive during the cyclical downturn with significant leverage to the upside when commodity prices recover.





100% basis		CY 2015	CY 2014
<b>Sales volumes</b>			
Titanium slag	(kt)	131.7	178.2
Ilmenite	(kt)	420.4	74.9
Zircon	(kt)	41.9	7.1
High-purity pig iron	(kt)	64.6	105.7
Rutile & Leucoxene	(kt)	4.6	0.2

## GCO SALES

The significant increase in production at GCO saw sales volumes increase throughout the reporting period.

Despite weakening market conditions, GCO was able to negotiate sales contracts with external customers for the majority of its ilmenite production for 2015. GCO also completed two shipments to TTI in 2015 to ensure there was adequate feedstock available for the restart of the furnace in December.

Ilmenite prices remained under pressure throughout the year as markets remained supply driven, creating downward pressure on prices.

Zircon sales continued to increase throughout 2015 as production increased. Customer feedback on product quality remained positive, illustrating the acceptance of GCO zircon in the market.

Zircon pricing was relatively stable throughout the year.

## POSITIVE EBITDA at GCO

OVER FINAL 5 MONTHS OF 2015

## TTI SALES

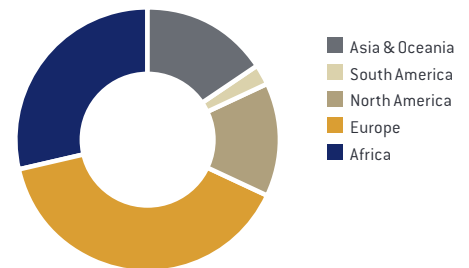
TTI sales volumes were significantly impacted by the furnace reline and capacity expansion project.

Despite a concerted effort late in 2014 and during 2015 to build up inventory for the shutdown, titanium slag sales volumes were lower than expected, and were exacerbated by titanium feedstock market conditions which saw pigment producers delaying or cancelling some purchases in 4Q 2015.

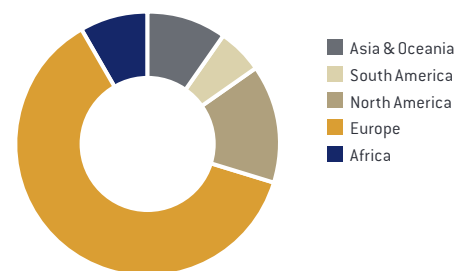
In conjunction with the decrease in sales volumes, average pricing for titanium slag remained under pressure and declined during the year.

Sales volumes for high-purity pig iron were lower due to restricted production capacity, as outlined. Pricing for high-purity pig iron was strong during 1H 2015, reflecting tighter supply due to geopolitical tensions in Eastern Europe and a weakening of the Euro against the United States Dollar. However, reduction in demand from both local European foundries and factories in China, together with increased competition from Eastern European producers during 4Q 2015, saw prices decrease towards year-end.

Revenue by region



Volume by region



Completion of the reline and capacity expansion of the TTI furnace was a key part in the strategic vision of TiZir and represents the final step in the integration of the joint venture. Shareholders will now realise the benefits of synergies generated by the integration of GCO and TTI.

Based on expectations that 2016 will be another challenging year for mineral sands feedstock markets, the strategy for MDL and the joint venture will be to focus on production efficiencies and cost reduction initiatives to ensure the competitiveness of the operations at all stages of the commodity price cycle.

## GCO PRODUCTION OPTIMISATION

GCO will continue to build on the commissioning successes of 2015 by focusing on operational utilisation and sustainable throughput rates, whilst also increasing efficiencies with respect to mining recoveries and processing yields to bolster GCO's capacity to operate as a Tier 1 asset.

Further, cost reduction initiatives to enhance GCO's competitiveness are underway and will continue during 2016.

## TTI ILMENITE UPGRADING FACILITY

Following the successful completion of the furnace reline and capacity expansion project in December 2015 and the consequent restart of operations, TTI's primary focus is the ramp-up of operations. It is anticipated that the upgraded furnace and water-cooled copper-ceramic roof will increase smelting capacity by approximately 15% and improve maintenance performance by lengthening periods between scheduled shutdowns.

## STRATEGIC FLEXIBILITY

The integration of GCO and TTI and completion of the refurbishment and capacity expansion project have created the flexibility to produce chloride and sulphate titanium slag, providing the ability to alternate between products as dictated by supply and demand dynamics within the market. Also, chloride titanium slag production will use ilmenite produced by GCO, which will both secure supply of ilmenite from within the group and reduce exposure to the lower value, more volatile ilmenite market, thereby mitigating the risk profile of the business.

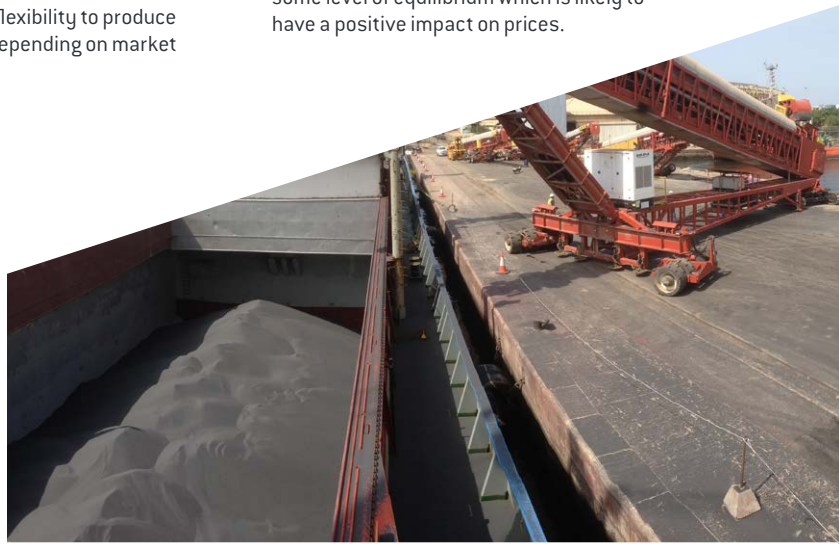
The TiZir joint venture now has the ability to supply a range of titanium feedstocks to customers and the flexibility to produce different feedstocks depending on market demand.

## MARKET OUTLOOK

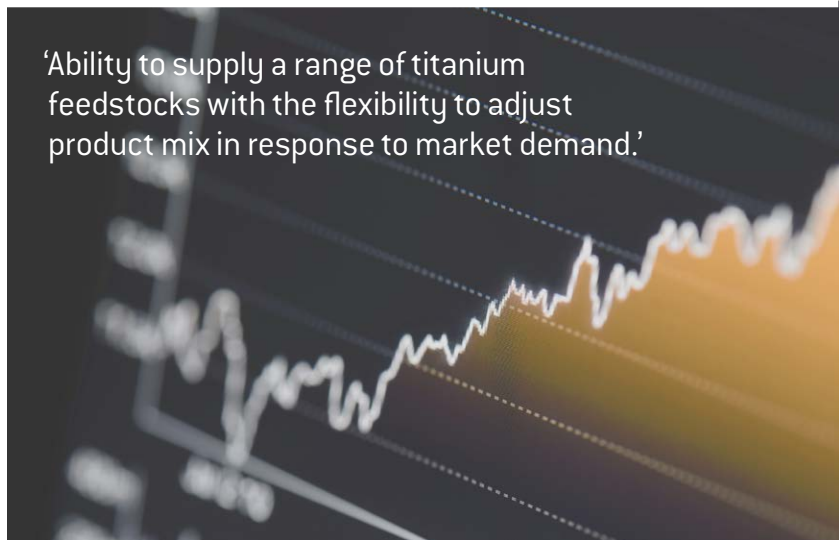
As previously mentioned, titanium feedstock markets remain supply driven with increased pressure on prices. Overcapacity persists in both the mineral sands and pigment production industries, mainly due to weak demand and Chinese oversupply. Continued overproduction of pigment in China has seen price deflation exported to TiZir's key markets in Europe and North America, resulting in customers cutting production and thereby putting pressure on feedstock prices and volumes. On the positive side, this situation has resulted in investment in new feedstock capacity being largely delayed or abandoned, while some US and Australian mining operations are closing due to orebody depletion. Furthermore, some pigment production capacity has also been temporarily or permanently shut down, all of which bodes well for the future recovery of the sector.

Whilst the zircon market has remained relatively stable, towards the end of 2015 there were some indications of slight weakening in the lower grade markets.

At this stage, it is anticipated that product pricing will remain under pressure until such time as the supply/demand relationship regains some level of equilibrium which is likely to have a positive impact on prices.



'Ability to supply a range of titanium feedstocks with the flexibility to adjust product mix in response to market demand.'



# CORPORATE DIRECTORY

## Directors

Nic Limb (Executive Chairman)  
Martin Ackland (Executive)  
Robert Danchin (Independent/Deputy Chairman)  
David Isles (Independent)  
Tom Whiting (Independent)  
Charles (Sandy) MacDonald (Independent)

## Executives

Robert Sennitt (Chief Executive Officer)  
Jozsef Patarica (Chief Operating Officer)  
Greg Bell (Chief Financial Officer)  
Michaela Evans (Company Secretary)

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## Tax Agents and Advisers

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Melbourne VIC 3000  
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## Solicitors

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## Bankers

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