



THARISA STRATEGIC UPDATE

August/September 2017

tharisa



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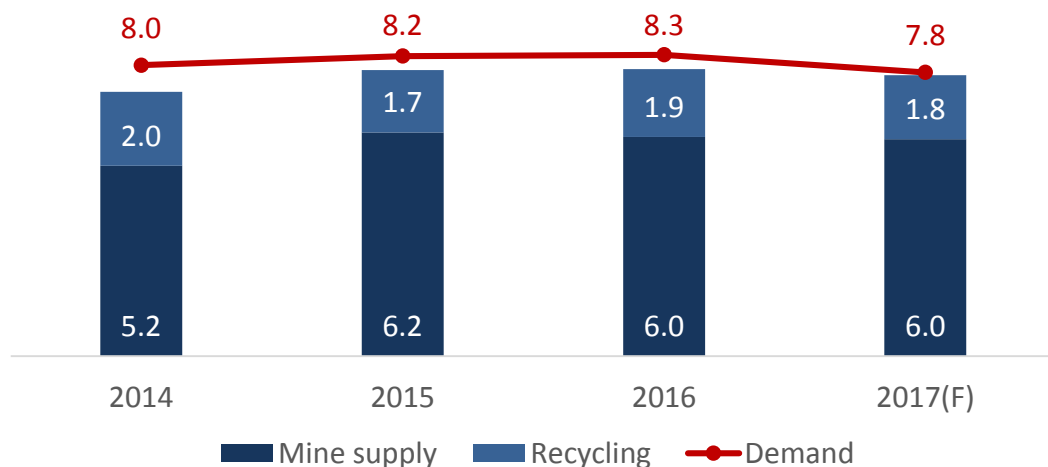
MARKETS



PLATINUM DEMAND AND SUPPLY 2017

- Demand driven by the autocatalyst, jewellery, industrial and investment sectors
- Both primary and secondary sources of supply seen decreasing
- Primary supply weaker in 2017 due to lower prices, with lower capital investment and cost increases
- In 2017 platinum to remain in deficit by 65 koz

PLATINUM DEMAND AND SUPPLY [Moz]

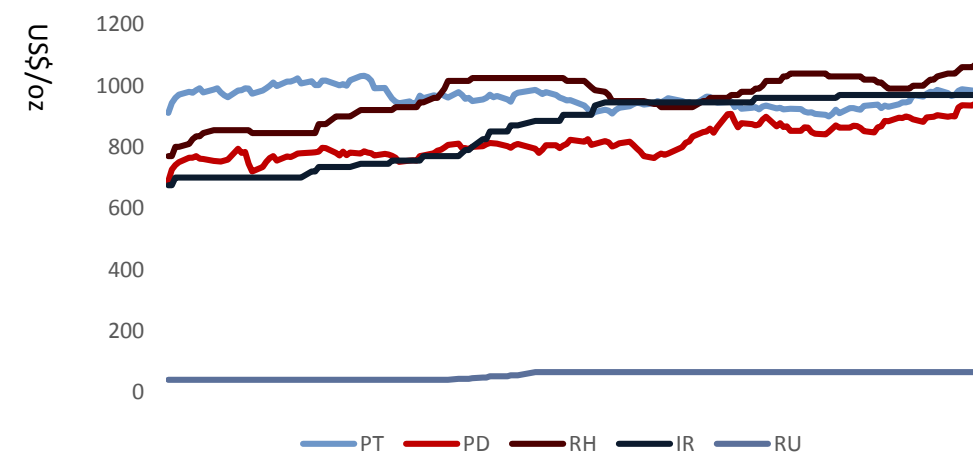


PGM BASKET PRICES

PGM market heading for three-way price parity with platinum and palladium edging closer towards the price of iridium

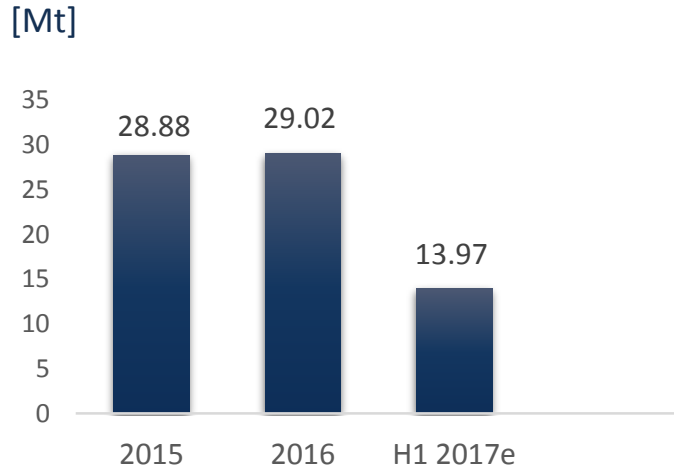
Platinum	982	US\$/oz
Palladium	938	
Ruthenium	1100	
Iridium	970	
Rhodium	65	

PGM PRICES YTD

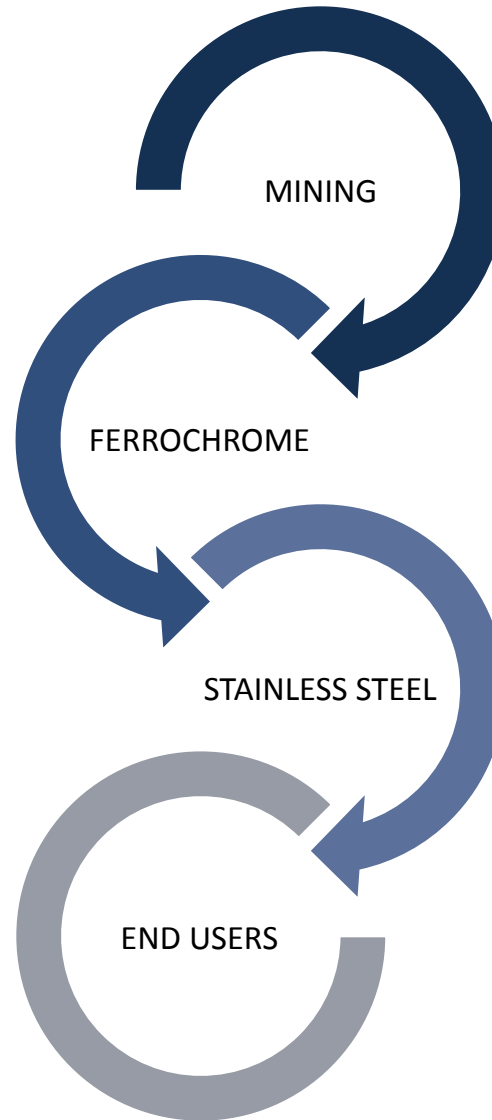
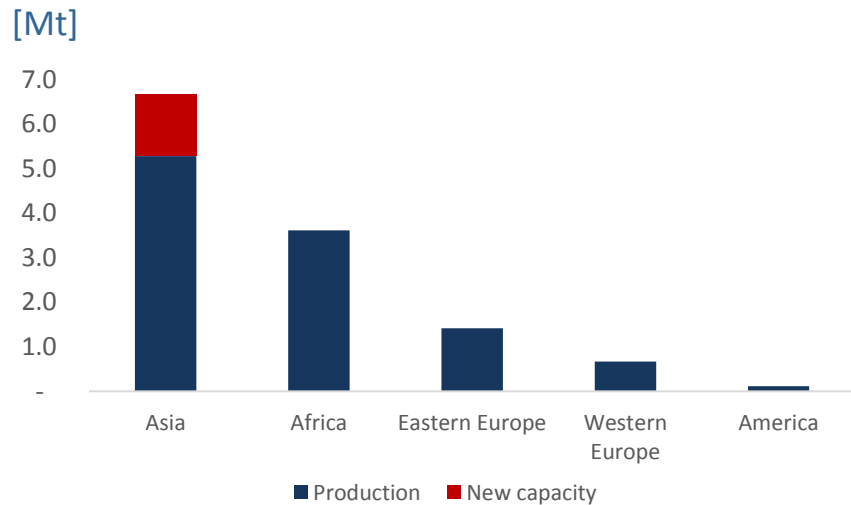


CHROME LIFECYCLE

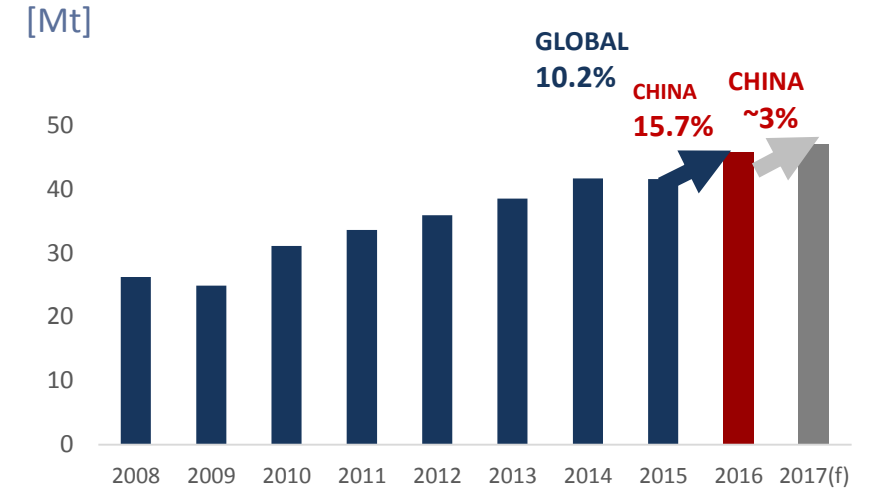
Global Chrome Production



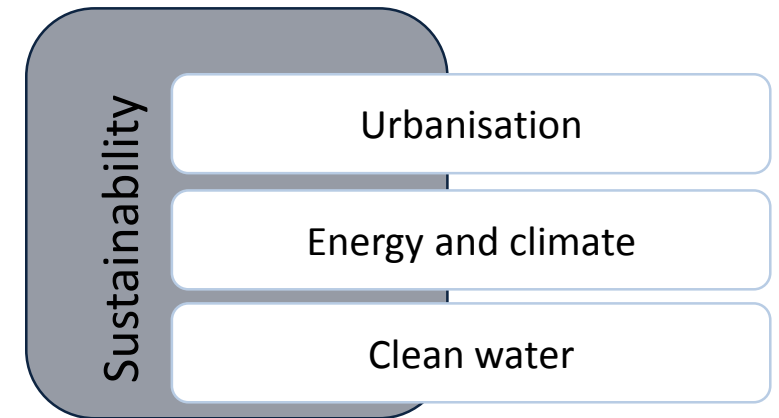
Global Ferrochrome Production



Global Crude Stainless Steel Production



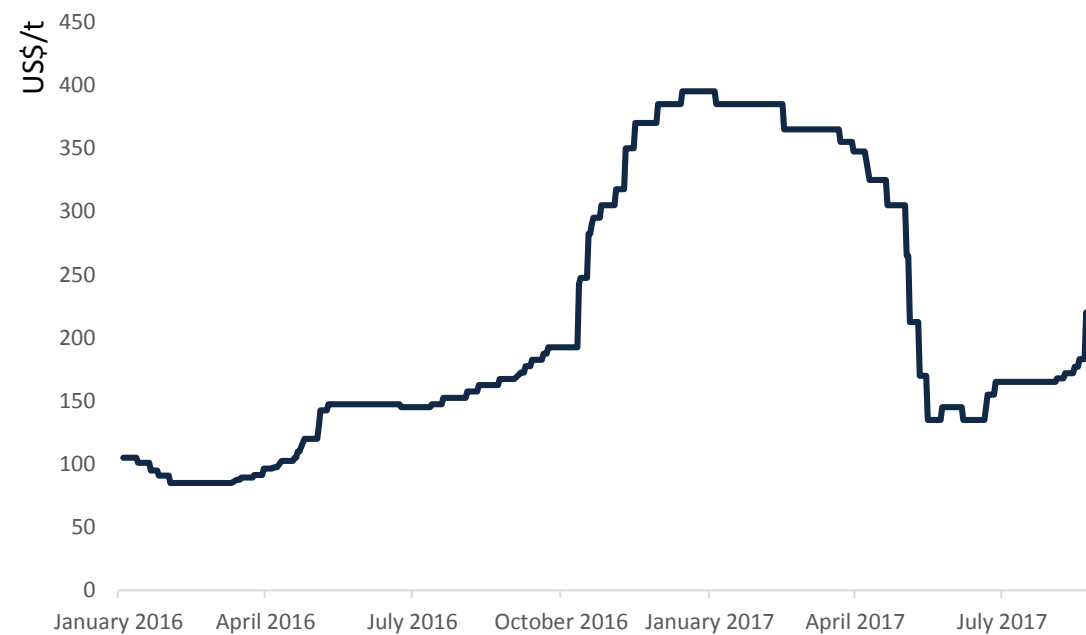
Trends Driving Stainless Steel Demand



DEMAND AND SUPPLY 2017

- Demand for metallurgical grade chrome concentrate is driven by its use in the manufacture of stainless steel, the production of which is estimated to grow at between 3% to 4% in 2017
- China is wholly dependent on imports of chrome ore/alloy
- Chrome prices were volatile at the start of 2017, peaking at US\$395 and dipping to US\$135 within four months
- Since then spot prices stabilised and more recently, started to strengthen with the latest negotiated prices at US\$220/t for delivery in October 2017
- Chrome stocks at Chinese ports are at 2.43 Mt – just over two month’s worth of stock
- About 1 million tonnes of that amount is considered “frozen stock” – stock purchased at prices of US\$250 or higher

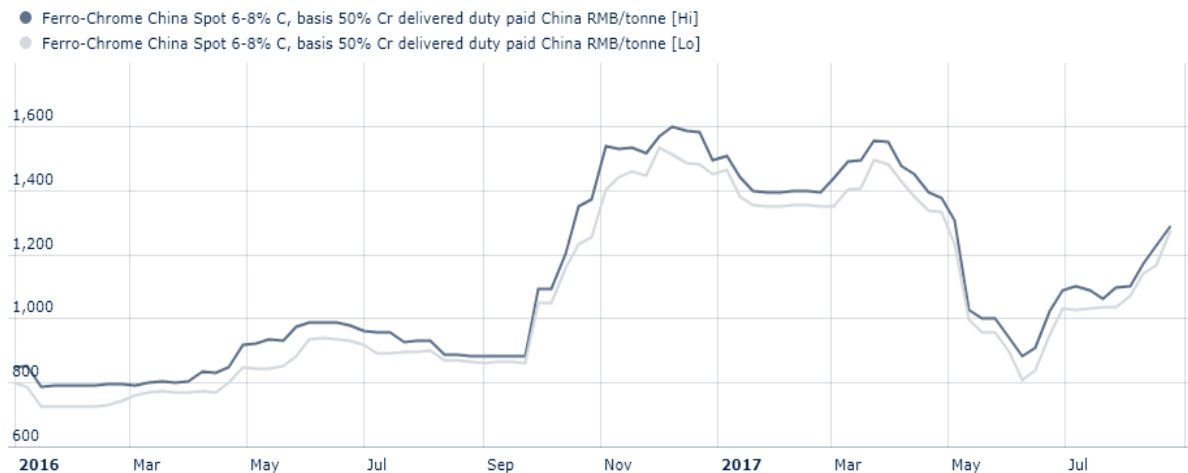
CHROME PRICES



LATEST TRENDS

- Most smelters are profit making at current input prices with various factors (primarily good underlying demand for stainless steel in China and the existence of sizeable chrome ore stocks) making market conditions less volatile than they have been so far in 2017
- Metal Bulletin's price quotation for spot Chinese domestic high-carbon ferrochrome (6-8% C, basis 50% Cr) increased nearly 7% to 8 500-8 600 yuan (\$1 276- \$1 291) per tonne on 25 August

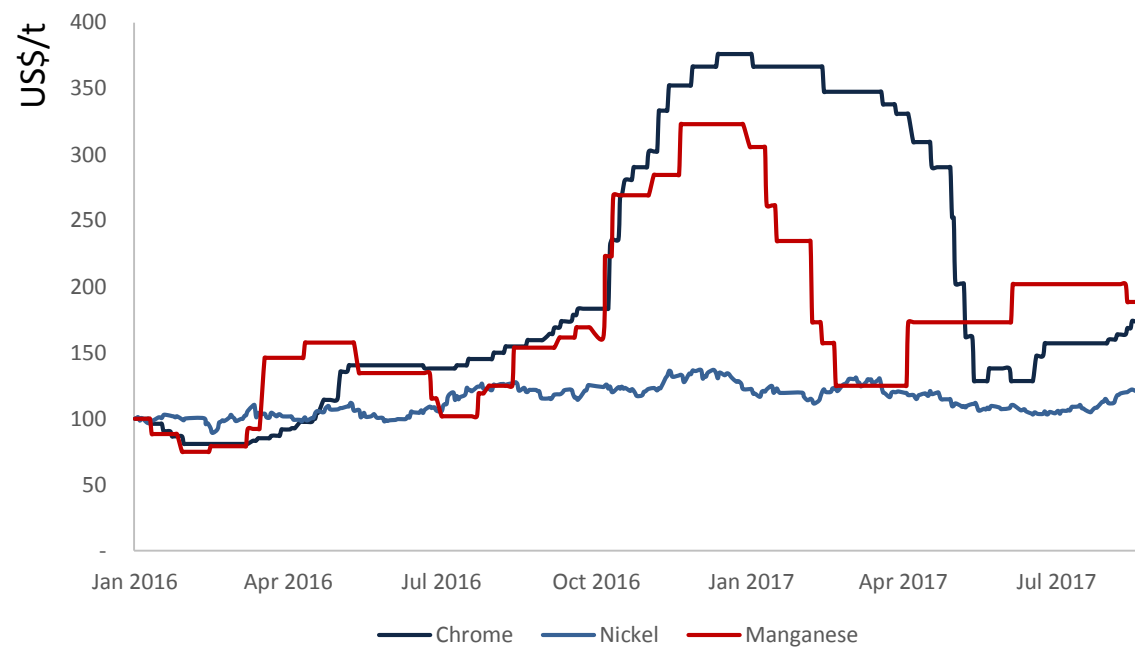
FERROCHROME PRICES



STAINLESS STEEL RAW MATERIAL TRENDS

- Prices of other stainless steel raw materials such as nickel have also been climbing with the 3-month nickel price on the LME reaching US\$11 825 per tonne on 23 August – the highest level since December 2016
- The prospect of a tightening HC FeCr market balance has impacted upon sentiment in China and there are signs that the current stainless steel stocking cycle in China will be short-lived
- CRU's recent analysis of finished stainless steel stocks in China indicated that stocks were far lower in late Q2 2017 than they had been back in late 2014
- The end of government environmental inspections, which affected manufacturing in a number of provinces during May and June 2017, triggered downstream demand for stainless steel
- Global stainless steel demand is set to reach 39.2 Mt in 2017, with global consumption expected to increase at an annual average growth rate of around 3% through to 2019

STAINLESS STEEL RAW MATERIAL TRENDS



STAINLESS STEEL BY END USE SEGMENT

Automotive & Heavy Transport

- Truck exhaust systems
- Fuel lines
- Sensors



Infrastructure & Reticulation

- Water infrastructure
- Sewage
- Glass to metal systems
- Thermal insulation



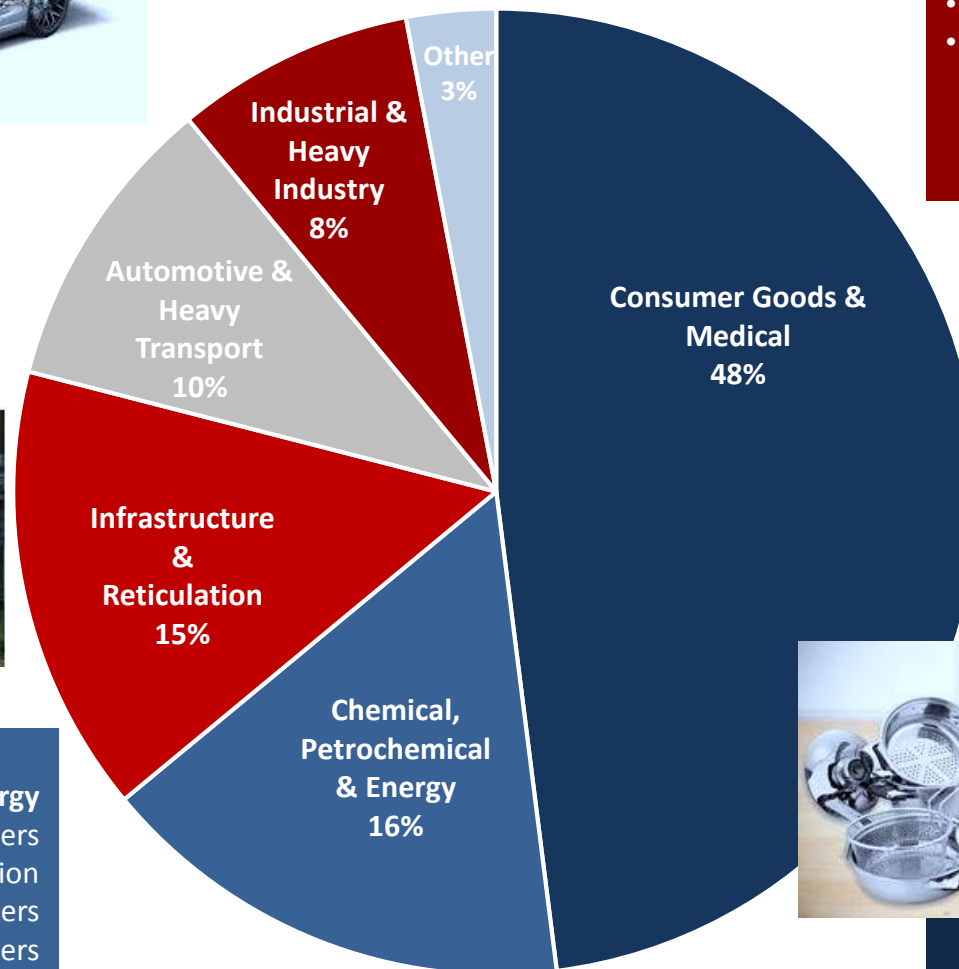
Chemical, Petrochemical & Energy

- Tank containers
- Crude distillation
- Hydrodesulfurizers
 - Hydrofiners
 - Alkylation



Industrial & Heavy Industry

- Recovery in pulp and paper industry
- Seawater desalination




Consumer Goods & Medical

- Energy saving appliances
 - Washing machines
 - Microwaves
 - Air conditioners
- High quality cookware
- Sterile equipment

OPERATIONAL UPDATE



YTD OPERATIONAL HIGHLIGHTS

SPECIALTY CHROME
PRODUCTION  27.9%
239.6 kt
(*2016: 187.3 kt)

REEF MINED

 3.6%

3 724.3 kt

(*2016: 3 594.0 kt)

PGM PRODUCTION

 11.9%

104.6 koz

(*2016: 93.5 koz)

CHROME CONCENTRATE PRODUCTION

 6.5%

970.7 kt

(*2016: 911.5 kt)

REEF MILLED

 6.7%

3 616.8 kt

(*2016: 3 389.2 kt)

PGM RECOVERY

 19.8%

79.3%

(*2016: 66.2%)

CHROME RECOVERY

 3.0%

64.3%

(*2016: 62.4%)

YTD OPERATIONAL PERFORMANCE

		Quarter ended 30 Jun 2017	Quarter ended 31 Mar 2017	Quarter on quarter movement %	Quarter ended 30 Jun 2016	Nine months ended 30 Jun 2017
Reef mined	kt	1 275.2	1 219.2	4.6	1 235.4	3 724.3
Stripping ratio	m ³ waste/m ³ reef	6.9	7.5		7.4	7.8
Reef milled	kt	1 199.1	1 211.3	(1.0)	1 192.2	3 616.8
PGM flotation feed tonnes	kt	866.0	897.9	(3.6)	929.6	2 648.9
PGM rougher feed grade	g/t	1.57	1.56	0.6	1.64	1.55
6E PGMs produced	koz	35.4	34.3	3.2	33.5	104.6
PGM recovery	%	81.3	76.2	6.7	68.5	79.3
Average PGM contained metal basket price	US\$/oz	792	783	1.1	745	771
Average PGM contained metal basket price	ZAR/oz	10 443	10 355	0.8	11 162	10 352
Cr₂O₃ ROM grade	%	17.8	17.5	1.7	17.7	17.6
Chrome recovery	%	66.0	62.5	5.6	61.6	64.3
Chrome yield	%	27.8	26.0	6.9	25.8	26.8
Chrome concentrates produced	kt	333.9	314.6	6.1	307.1	970.7
Metallurgical grade	kt	246.8	239.2	3.2	225.6	731.1
Specialty grades	kt	87.1	75.4	15.5	81.5	239.6
Metallurgical grade chrome concentrate contract price	US\$/t CIF China	147	338	(56.5)	105	212
Metallurgical grade chrome concentrate contract price	ZAR/t CIF China	1 892	4 430	(57.3)	1 589	2 844
Average exchange rate	ZAR:US\$	13.2	13.2	-	15.0	13.5

STRATEGIC UPDATE



TRANSITION TO OWNER MINING

PLAN

Tharisa Minerals moves from contract to owner mining operating model

- Tharisa Minerals to purchase existing contractor's fleet (equipment, strategic components, site infrastructure and spare parts)
- Contractor's employees currently deployed at Tharisa Mine to be transferred to Tharisa

STATUS

Conditions fulfilled, funding in place

- Conditions, including regulatory approval, fulfilled
- Funding in place
- Replacement programme in place
- Tharisa begins transferring about 900 MCC employees on to its payroll

GOAL

Smooth transition with no operational impact

- Transaction effective 1 October 2017
- Previous contract employees fully integrated into Tharisa health, safety and operational culture
- Operational improvements – control of reef grades = delivery of improved quality ore to plants = higher recoveries



THE NOISE

New mining charter unsettles investors, wipes R50 billion from the sector: report

ANALYSIS: Zwane's mining charter lunacy

The arbitrary and prescriptive new mining charter is unlikely to pass legal muster, so minister Mosebenzi Zwane may be re-open negotiations with the mir

Zwane blunder: mining bleeds

ANC slaps Zwane down on Mining Charter

Chamber lodges urgent interdict against Zwane's mining rights law

DMR will not implement licence moratorium, according to tweet

Gigaba sets December deadline for MPRDA, re-opens Charter talks

MPRDA heading for same legal wrangling as Mining Charter

THARISA FACTS

Tharisa's Black Economic Empowerment (BEE) partners, Tharisa Resources and the local community, own 20% and 6% respectively at the mine level. It would be relatively simple to upscale ownership levels if required.

Certain of new targets set out in Mining Charter III apply only to new mining rights and not existing mining rights. Tharisa holds an existing mining right and therefore not required to transfer 1% of its annual turnover to a trust created and managed by the government.

Tharisa has always been committed to transformation. It already has a share-based incentive plan in place for employees and its community initiatives have launched a number of small enterprises supporting members of the mining community.

SUPPLYING TISCO JV

- Five-year strategic co-operation agreement
- Minimum of 240 ktpa at market prices
- Represents ~ 25% of Tharisa's forecast FY2017 production of 1 Mt of metallurgical grade chrome concentrate
- Start September 2017
- JV has installed 700 ktpa Outokumpu FeCr sintering and pelletising capacity, with an annual producing volume of 300 kt FeCr
- JV considering a phase 2 expansion, which would increase its FeCr production to 450 ktpa and increase requirements for metallurgical chrome concentrate

THIRD-PARTY CHROME

- Arxo Metals agreement with Western Platinum
- Operate the K3 UG2 plant, as well as the marketing and sale of the UG2 chrome concentrate produced
- Effective as of 29 August 2017
- Arxo Metals will unlock greater value using innovative technology already in use at Tharisa's operations
- Agreement in line with strategic objective of initiating third-party trading
- Adds about 200 kt to chrome sales annually

PGM R&D

- Arxo Metals commissioning a 1MW DC furnace to produce PGM-rich metal alloys on a pilot scale
- Furthers Tharisa's beneficiation capability and profitability of its PGM segment
- Furnace to be commissioned end of September 2017
- PGM-rich metal alloy will be smelted by Lonmin as part of a PGM research and development co-operation agreement entered into on 19 July 2017

DELIVERING ON OUR PROMISES

IMPROVED VOLUMES

- Ore mined up 3.6%
- PGM concentrate produced 11.9% higher
- Chrome concentrate produced 6.5% higher

RECOVERIES UP

- PGM recovery improved to 79.3%
- Chrome recovery improved to 64.3%

SAFETY

- No fatalities
- LTIFR at 0.06 per 200 000 man hours worked

OWNER MINING

- Conditions precedent met
- Financing in place
- Effective date 1 October 2017

OPTIMISATION

- Genesis high energy flotation on stream
- Continuous improvement initiatives

UNCHANGED GUIDANCE

- 147.4 koz of PGM concentrates
- 1.3 Mt of chrome concentrates, including 300 kt of specialty products

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