

FACT SHEET

# IMPALA

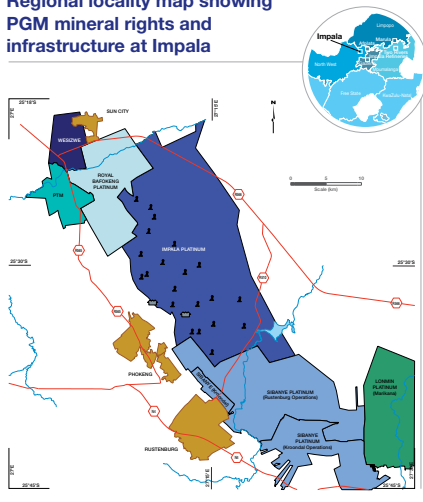


Impala, Implats's 96% owned primary operational unit has operations situated on the western limb of the world-renowned Bushveld Complex near Rustenburg in South Africa. This operation comprises a 13-shaft mining complex and concentrating and smelting plants. The base and precious metals refineries are situated in Springs, east of Johannesburg. In FY2017 Impala produced 654 600 ounces of refined platinum.

## GEOLOGY

Both the Merensky and UG2 Reefs, which are contained in the Rustenburg Layered Suite, a well-layered ultramafic to mafic igneous succession on the 2 billion year-old Bushveld Complex, are present throughout the lease area. Both reefs sub-outcrop on the mining area and dip approximately 10 to 12 degrees towards the centre of the Complex, although locally dips may increase to 15 degrees. The vertical separation between the Merensky and UG2 reefs varies from about 125 metres in the south to some 45 metres in the north.

**Regional locality map showing PGM mineral rights and infrastructure at Impala**



## MINERAL RESOURCES AND RESERVES

Mineral Resources as at 30 June 2017						
Impala	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
Merensky	measured	132.3	122	6.30	7.09	16.9
	indicated	68.8	108	6.31	7.11	8.8
	inferred	21.2	99	6.93	7.80	3.0
UG2	measured	165.0	95	5.48	6.57	16.8
	indicated	71.0	95	5.50	6.60	7.3
	inferred	20.8	95	5.40	6.49	2.1
	<b>Total</b>	<b>479.1</b>		<b>5.89</b>	<b>6.85</b>	<b>54.8</b>
Mineral Resources (tailings) as at 30 June 2017						
	Category	Tonnes (Mt)		Grade (Pt g/t)		Platinum (Moz)
1 & 2 tailings complex	indicated	48.1		0.42		0.6
Mineral Resources as at 30 June 2017 – Impala/RBR JV						
Impala RBR JV	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
Merensky	measured	5.2	151	6.73	7.57	0.7
	indicated	5.4	151	7.13	8.03	0.8
	inferred	3.7	103	7.71	8.68	0.6
UG2	measured	2.5	95	5.23	6.28	0.2
	indicated	3.6	95	6.17	7.41	0.4
	inferred	2.8	95	6.74	8.08	0.3
	<b>Total</b>	<b>23.2</b>		<b>6.73</b>	<b>7.75</b>	<b>3.1</b>
Mineral Reserves as at 30 June 2017						
	Category	Mill Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
Merensky	proved	10.6	135	3.83	4.31	0.8
	probable	65.2	136	4.12	4.63	5.4
UG2	proved	13.4	108	3.74	4.49	0.9
	probable	78.7	106	3.67	4.40	5.4
	<b>Total</b>	<b>167.9</b>		<b>3.86</b>	<b>4.49</b>	<b>12.6</b>



### Impala Merensky 6E metal ratio



### Impala UG2 6E metal ratio



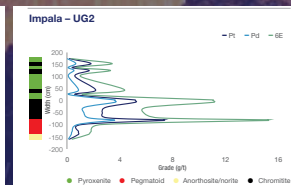
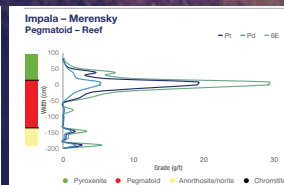
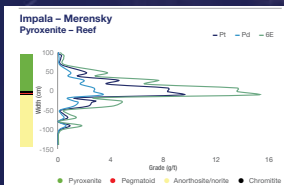
## MINING

Impala, together with the joint venture with Royal Bafokeng Resources, holds contiguous mining and prospecting rights over a total area of 33 562 hectares. The shafts across the property can be divided into three groupings – the old shafts (the ‘Old Men’ comprising 4, 6, 7, 7A, 9 and E/F), the mature shafts (the ‘Big 5’ include 1, 10, 11, 12 and 14) and the ‘Build-up shafts’ (16 and 20). The bulk of reserves (40%) are located in the Build-up shafts.

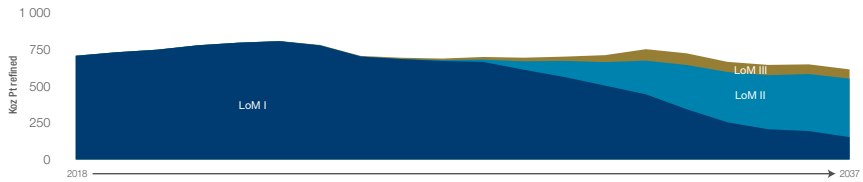
The Merensky and UG2 reefs are mined concurrently and the mining method is predominantly conventional breast mining. Mechanised bord and pillar mining occurs in selected Merensky Reef areas at 14 Shaft.

Mining currently extends to a depth of around 1 000 metres, with most operations occurring at an average depth of 800 metres. The stoping width for Merensky Reef is typically about 1.3 metres, whilst that for UG2 is about 1.1 metres. Panel lengths vary from 15 to 30 metres for both Merensky and UG2 reefs.

Mineable face length for conventional mining crews, which provides the best measure for ore reserve flexibility, improved from 17.8 kilometres in 2012 to some 21.9 kilometres in 2016. This has regressed to 19.1 kilometres due to the economic assessment of certain unmined areas and the decision to exclude these from mine plans and the impact of shorter UG2 panel lengths.



### Impala 20-year LoM Pt ounce profile



## CAPITAL PROJECTS

The two new major shafts, namely 16 and 20, are designed as replacement shafts for the older infrastructure with declining resource availability. The intention is to create a more concentrated mining operation with access to new, modern shaft complexes making better use of the invested fixed cost base, with higher mining efficiencies and lower unit costs.

Implats continues to prioritise key capital projects that are value enhancing in the current price environment and that are also important to long-term value creation. The priority is to complete the development of 16 and 20 shafts. To date, some R14 billion has been invested and a further R2.2 billion remains to be spent over the next five years. The shafts are expected to deliver output of 310 000 platinum ounces in 2022. Project development work at 17 Shaft has been placed on a low cost care-and-maintenance programme given persistently low metal prices.

## METALLURGY

Mineral Processes houses the concentrator and smelter operations and is located on the mine property in Rustenburg. Current smelting capacity is 2.6 million ounces of platinum.

The refineries located in Springs comprises a Base Metal Refinery (BMR) and a Precious Metal Refinery (PMR). Current refining capacity is 2.3 million ounces of platinum.

## SUSTAINABLE DEVELOPMENT

Impala focuses on addressing social, economic and environmental issues that are seen as having a material impact on the long-term success of the business, the sustainability of the economy, the environment and the communities in which we operate or that are important to key stakeholders. The pursuit of sustainable development and zero harm are seen as competitive imperatives.

## BLACK ECONOMIC EMPOWERMENT

Impala met the ownership requirements of the Mining Charter for 2015. In terms of an agreement finalised in March 2007, the Royal Bafokeng Nation (RBN) converted all royalties due to them for the period from 1 July 2007 onwards into an equity stake of 11.3% in Implats. In 2016 Royal Bafokeng Holdings reduced their holding in Implats to 6.29%. During 2015 4% of Impala shares were issued to employees leaving Implats with a 96% attributable interest in Impala.

## HISTORY

Hans Merensky first discovered platinum in the Bushveld Igneous Complex in 1924. Union Corporation bought the Impala Prospecting Company in the following year during which the first six boreholes were drilled.

The first vertical shaft was developed in 1967 and Impala Platinum Limited was created as a subsidiary of Union Corporation on 26 April 1968.

Initial production commenced on 22 July 1969 after a mining lease over land pre-dominantly held by the then Bafokeng Tribe (now the Royal Bafokeng Nation) was granted in 1968.

Initially, Impala mined the Merensky Reef and mining on the UG2 chromitite layer only began in the early 1980s as the technology to smelt higher chrome ore was developed.

By the early 1990s, 13 vertical shafts were in operation and Impala was producing in the region of one million platinum ounces per annum. Shaft sinking at the new generation shafts (16, 17 and 20) commenced in the mid-2000s.

## IMPALA – KEY STATISTICS

IMPALA – KEY STATISTICS		FY2017	FY2016	FY2015	FY2014	FY2013
<b>Production</b>						
Tonnes milled ex mine*	('000t)	<b>10 121</b>	10 316	9 199	6 183	10 897
% Merensky milled*	(%)	<b>40.2</b>	41.2	46.6	43.8	43.9
Headgrade (6E)*	(g/t)	<b>4.06</b>	4.16	4.19	4.34	4.32
Platinum refined production	('000oz)	<b>654.6</b>	626.9	575.2	411.0	709.2
PGM refined production	('000oz)	<b>1 246.6</b>	1 219.6	1 137.3	765.9	1 377.9
<b>Labour efficiency</b>						
Centares per employee costed** (m <sup>2</sup> /man/annum)		<b>45</b>	45	37	26	47
Tonnes milled per employee costed** (t/man/annum)		<b>255</b>	252	219	144	255
<b>Cost</b>						
<b>Mining cost of sales</b>	(Rm)	<b>(17 510)</b>	(16 506)	(14 824)	(12 229)	(12 491)
Mining operations	(Rm)	<b>(11 703)</b>	(10 600)	(10 354)	(6 616)	(8 993)
Processing operations	(Rm)	<b>(2 896)</b>	(2 534)	(2 335)	(1 606)	(2 295)
Refining operations/marketing	(Rm)	<b>(615)</b>	(571)	(794)	(615)	(735)
Other	(Rm)	<b>(2 296)</b>	(2 801)	(1 341)	(3 392)	(468)
<b>Total cost</b>	(Rm)	<b>15 411</b>	13 879	13 738	9 057	12 227
	(US\$m)	<b>1 130</b>	962	1 204	873	1 387
<b>Unit costs</b>	(R/t)	<b>1 523</b>	1 345	1 493	1 465	1 122
per tonne milled*	(US\$/t)	<b>112</b>	93	131	141	127
	(R/oz)	<b>23 543</b>	22 139	23 884	22 036	17 241
per platinum ounce refined*	(US\$/oz)	<b>1 726</b>	1 535	2 092	2 125	1 955
<b>Financial ratios</b>						
Gross margin ex mine	(%)	<b>(19.9)</b>	(13.4)	(10.9)	(18.4)	14.4
<b>Capital expenditure</b>						
	(Rm)	<b>2 472</b>	2 490	3 047	2 823	4 390
	(US\$m)	<b>181</b>	173	267	272	498
<b>Safety</b>						
LTIFR	(pmmhr <sup>+</sup> )	<b>7.43</b>	7.57	5.08	5.04	4.91
FIFR	(pmmhr <sup>+</sup> )	<b>0.079</b>	0.102	0.067	0.048	0.087
<b>Labour complement</b>						
Own employees	(no)	<b>32 235</b>	30 946	32 536	32 900	33 356
Contractors	(no)	<b>10 018</b>	9 531	11 708	11 708	13 315

\* The ex mine tonnage and grade statistics excludes the low grade material from surface sources

\*\* Total employees excluding capital project employees

+ Per million man hours worked





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