

FACT SHEET

# MARULA





Marula is 73% owned by Implats and is one of the first operations to have been developed on the relatively under-exploited eastern limb of the Bushveld Complex in South Africa. It is located in the Limpopo Province, some 35 kilometres north-west of Burgersfort. In FY2016 the operation produced 77 100 ounces of refined platinum. The operation comprises two decline shaft systems and a concentrator plant.

## GEOLOGY

Marula holds two contiguous mining rights and a prospecting right covering 5 494 hectares across the farms Winaarshoek and Clapham, and portions of the farms Driekop, Forest Hill and Hackney. Marula also has a royalty agreement with Modikwa which allows limited mining on an area adjacent to the Driekop shaft.

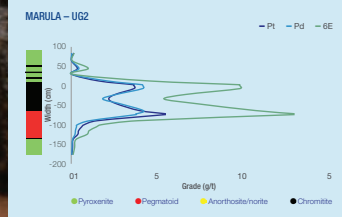
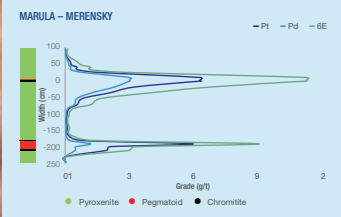
Both the Merensky and the underlying UG2 reefs are present and sub-outcrop in the Marula mining right area. The reefs dip generally in a west-southwest direction at 12 to 14 degrees with a vertical separation of some 400 metres between them. While one prominent dyke and a dunite pipe are present, there is minimal faulting on the property.

### Mineral resources (inclusive reporting) as at 30 June 2016

	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
Merensky	measured	34.3	100	4.26	4.56	2.7
	indicated	7.9	100	4.24	4.54	0.6
	inferred	9.7	100	4.17	4.46	0.7
UG2	measured	33.3	57	8.65	10.17	4.0
	indicated	13.6	62	8.89	10.45	1.7
	inferred	7.7	60	9.07	10.67	1.0
	<b>Total</b>	<b>106.5</b>		<b>6.56</b>	<b>7.50</b>	<b>10.8</b>

### Mineral reserves as at 30 June 2016

	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
UG2	proved	4.2	133	4.18	4.91	0.2
	probable	22.2	132	3.93	4.62	1.2
	<b>Total</b>	<b>26.4</b>		<b>3.97</b>	<b>4.67</b>	<b>1.5</b>

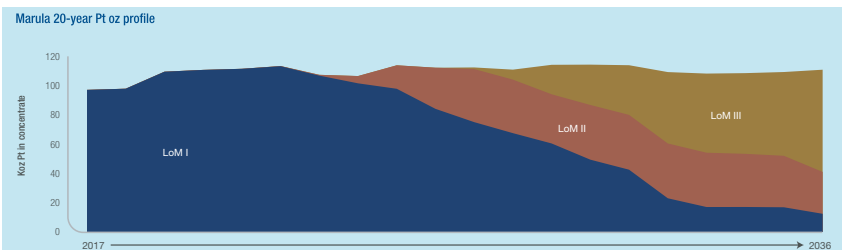


## MINING

Current mining activities target the UG2 reef only which is accessed via two decline shaft systems. Driekop Shaft uses a hybrid mining method, while at Clapham Shaft, both hybrid and conventional mining methods are currently being used. In the hybrid sections, all main development is done on reef, and stoping is carried out through conventional single-sided breast mining from a centre gully. The stoping width averages 1.4 metres.

For the conventional operation, the footwall drives are developed on strike approximately 25 metres below the reef horizon with crosscut breakaways about 220 metres apart. Development is undertaken with drill rigs and dump trucks. Stope face drilling is done with hand held pneumatic rock drill with air legs.

The optimisation of Marula's existing infrastructure over the past few years will provide the necessary foundation for the mine to reach a targeted output of 90 000 ounces of platinum in 2017.

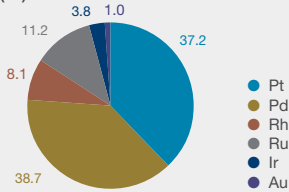


## SUSTAINABLE DEVELOPMENT

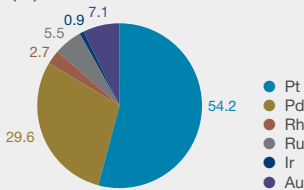
Marula focuses on addressing those social, economic and environmental issues that are seen as having a material impact on the long-term success of the business, the sustainability of the economy, the environment and the communities in which we operate or that are important to key stakeholders. The pursuit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

Marula is determined to maximise the benefits of the mine for its local communities and the social investment strategy focuses on addressing the urgent needs identified in these areas. Preference is given to local contractors and suppliers of goods and services. Makgoma Chrome is a joint venture that assists local communities with the extraction and marketing of chrome from tailings.

Marula UG2 6E metal ratio (%)



Marula Merensky 6E metal ratio (%)



## METALLURGY

Marula has a concentrator plant where initial processing is done.

Concentrate is transported by road to Impala Platinum's Mineral Processes in Rustenburg in terms of a life-of-mine offtake agreement with Impala Refining Services (IRS).



## HISTORY

Platinum was first discovered in the area by renowned explorer Hans Merensky on the nearby farm Maandagshoek (now Modikwa Platinum) in the 1920's. In June 1998 Implats entered into an arrangement to acquire the Winnaarshoek property from Platexco, a Canadian based company. The mineral rights to portions of the adjacent farms of Clapham and Forest Hill and a sub-lease to Driekop were subsequently acquired from Anglo Platinum in exchange for Hendriksplaats (part of Modikwa Platinum) so consolidating the Marula mine area. The exploration programme was then expanded and some 750 surface boreholes were drilled. The establishment and development of the mine, requiring considerable investment from Implats in both infrastructure and environmental protection measures, commenced in October 2002.

## BLACK ECONOMIC EMPOWERMENT

Black economic empowerment forms a key component of the Marula operation and our partners together own 27% of the company.

Each of the following parties hold a 9% stake in the business:

- **The Marula Community Trust** ensuring sustainable benefit flows to the local community over the life of the mine and beyond;
- **Tubatse Platinum**, a broad based HDSA empowerment consortium from local business; and
- **Mmakau Mining**, an established mining entity.

Implats, as the largest stakeholder, brings technical, managerial, financial and operational expertise to the mine.

## MARULA – KEY STATISTICS

MARULA – KEY STATISTICS		FY2016	FY2015	FY2014	FY2013	FY2012
<b>Production</b>						
Tonnes milled ex mine	('000t)	<b>1703</b>	1 662	1 794	1 628	1 579
Headgrade (6E)	(g/t)	<b>4.25</b>	4.19	4.19	4.19	4.18
Platinum in concentrate production	('000oz)	<b>77.7</b>	73.6	78.5	71.7	69.1
PGM in concentrate production	('000oz)	<b>204.6</b>	193.3	206.4	188.3	182.2
<b>Labour efficiency</b>						
Centares per employee costed** (m <sup>2</sup> /man/annum)		<b>51</b>	51	54	52	51
Tonnes milled per employee costed** (t/man/annum)		<b>371</b>	398	440	428	470
<b>Cost</b>						
<b>Cost of sales</b>	(Rm)	<b>(2 076)</b>	(1 856)	(1 803)	(1 620)	(1 277)
On-mine operations	(Rm)	<b>(1 669)</b>	(1 469)	(1 371)	(1 249)	(984)
Processing operations	(Rm)	<b>(206)</b>	(193)	(188)	(161)	(155)
Other	(Rm)	<b>(201)</b>	(194)	(244)	(210)	(138)
<b>Total cost</b>	(Rm)	<b>1 875</b>	1 662	1559	1410	1139
	(US\$m)	<b>130</b>	146	150	160	147
<b>Unit costs</b>						
per tonne milled	(R/t)	<b>1 101</b>	1 000	869	866	721
	(US\$/t)	<b>76</b>	88	84	98	93
per platinum ounce in concentrate	(R/oz)	<b>24 131</b>	22 582	19 860	19 665	16 483
	(US\$/oz)	<b>1 673</b>	1 978	1 915	2 230	2 129
<b>Financial ratios</b>						
Gross margin ex mine	(%)	<b>(23.7)</b>	(13.4)	(0.7)	(15.4)	(6.7)
<b>Capital expenditure</b>						
	(Rm)	<b>89</b>	145	159	125	223
	(US\$m)	<b>6</b>	13	15	14	29
<b>Safety</b>						
LTIFR	(pmmhw <sup>+</sup> )	<b>9.56</b>	18.20	18.91	13.97	19.02
FIFR	(pmmhw <sup>+</sup> )	<b>-</b>	0.111	-	-	0.130
<b>Labour complement</b>						
Own employees	(no)	<b>3 565</b>	3 568	3 411	3 175	2 982
Contractors	(no)	<b>1 235</b>	811	893	843	726

\*\* Total employees excluding capital project employees

+ Per million man hours worked



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