



## **XSTRATA ALLOYS ORE RESERVES & MINERAL RESOURCES and EXPLORATION RESULTS**

**October 2009**

**South African** Chromite, PGM's (Platinum Group Metals), Vanadium and Silica Mineral Resources and Ore Reserves in this report are reported in accordance with the 2004 Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), December 2004. **South African** Coal Resources and Coal Reserves in this report are reported in accordance with the 2007 South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral reserves (The SAMREC Code).

The Chromite, PGM's, Vanadium, Silica and Coal Mineral Resource and Ore Reserve Statement at 30 of June 2009 is consistent with these codes and is based on the Xstrata Alloys "Procedure for the Estimation of Mineral Resources and Ore Reserves", reference No. 10000027570. Definitions of all the terms used in this report can be found in the relevant codes.

Mineral Resource and Ore Reserve information in the tables below is based on information compiled by Competent Persons (as defined by the JORC and SAMREC Codes).

Each of the Competent Persons has the appropriate professional membership and the relevant experience in relation to the Mineral Resources and/or Ore Reserves being reported by them to qualify as a Competent Person as defined in the code. The Competent Persons have consented to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The Mineral Resources and Ore Reserves figures in the following tables are as at 30<sup>th</sup> June 2009, unless otherwise noted.

Metric units are used throughout. All data is presented on a 100% asset basis, with the Xstrata ownership percentage shown against each asset. All tonnage information has been rounded to reflect the relative uncertainty in the estimates; there may therefore be small differences in the totals. The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.

Commodity prices and exchange rates used to estimate the economic viability of Ore Reserves are based on long term forecasts applied at the time the estimate was calculated.

Resource and Reserve statements have been reviewed and the relevant data extracted and compiled by Pieter-Jan Gräbe, Xstrata Alloys (SACNASP).

## Consolidated Chrome Mineral Resources and Ore Reserves Statement.

As at 30 June 2009

Tonnage are quoted in million metric tonnes

Grades are quoted as % Cr<sub>2</sub>O<sub>3</sub>

	Attributable portion (%)	Mining Method	Commodity	ORE RESERVES		MINERAL RESOURCES			Competent Person
				Run-of-Mine		Measured (Mt)	Indicated (Mt)	Inferred (Mt)	
				Proved (Mt)	Probable (Mt)				
<b>Operating Mines</b>									
Waterval Mine	79.5%	UG	Chrome Ore	10.028	1.53	16.313	2.12	0.4	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	31.63%	27.2%	41.28%	42.1%	43%	
Kroondal Mine	79.5%	UG/OC	Ore	2.426	3.13	9.570	3.78	-	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	29.03%	27.0%	42.69%	42.4%	-	
Kroondal Gemini (Kroondal ext)	50.0%	UG/OC	Ore	6.013	6.44	9.740	7.73	0.9	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	31.86%	28.6%	43.00%	42.4%	42%	
Marikana East (Kroondal ext)	74.0%	UG	Ore	1.510	0.26	4.644	1.89	0.5	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	29.09%	27.4%	42.63%	42.2%	42%	
Thornccliffe Mine	79.5%	UG/OC	Ore	26.372	5.76	39.391	11.53	18.7	BS/DR
			Cr <sub>2</sub> O <sub>3</sub>	37.76%	36.7%	40.38%	40.6%	41%	
Helena Mine	79.5%	UG/OC	Ore	5.729	0.04	17.116	8.14	63.0	BS/DR
			Cr <sub>2</sub> O <sub>3</sub>	34.94%	34.1%	40.57%	39.7%	40%	
Horizon/Chromeden Mine	79.5%	UG/OC	Ore	-	-	0.066	14.31	8.3	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	-	-	41.80%	44.0%	43%	
<b>Total</b>				<b>52.078</b>	<b>17.147</b>	<b>96.841</b>	<b>49.50</b>	<b>91.9</b>	
<b>Projects/Non-operating Mines</b>									
Wonderkop	79.5%	UG	Ore	-	-	-	6.46	-	PJG
			Cr <sub>2</sub> O <sub>3</sub>	-	-	-	40.1%	-	
Townlands Extension 9	79.5%	UG	Ore	-	-	-	14.96	-	PJG
			Cr <sub>2</sub> O <sub>3</sub>	-	-	-	41.7%	-	
De Grootboom	79.5%	UG/OC	Ore	-	-	0.838	0.66	-	BS/DR
			Cr <sub>2</sub> O <sub>3</sub>	-	-	40.32%	40.4%	-	
Boshoek Mine	79.5%	OC/UG	Ore	-	-	0.101	18.23	0.1	AM/PJG
			Cr <sub>2</sub> O <sub>3</sub>	-	-	39.12%	40.3%	41%	
Klipfontein/Waterval	79.5%	UG	Ore	-	-	3.213	6.60	133.9	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	-	-	42.48%	42.6%	42%	
Marikana West (Waterval Ext)	74.0%	UG	Ore	-	-	3.869	0.81	0.8	NM/DR
			Cr <sub>2</sub> O <sub>3</sub>	-	-	42.44%	42.6%	43%	
<b>Total</b>				<b>-</b>	<b>-</b>	<b>8.021</b>	<b>47.72</b>	<b>134.8</b>	
<b>Grand Total Xstrata</b>				<b>52.078</b>	<b>17.147</b>	<b>104.863</b>	<b>97.22</b>	<b>226.7</b>	

### Definitions

OC = Opencast; UG = Underground

### Notes

- The Mineral Resources and Ore Reserve estimates are tabulated on a total mine basis as at 30<sup>th</sup> June 2009.
- The Measured - and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.
- Xstrata Alloy's chrome mining operations are all mining the chromitite deposits developed within the world renowned Bushveld Complex of South Africa. The Bushveld Complex is the largest known deposit of chrome ore in the world. The chrome ore are mined from shallow dipping (10° - 14°) tabular ore bodies referred to as the LG6/LG6A Chromitite Layers and the MG1 Chromitite Layer. The chromitite layers are mined mainly underground using trackless mechanized mining methods on a board-and-pillar mine lay-out design.
- Changes in the year on year tonnage and grade estimates are mainly due to mining depletion and changes in the resource and reserve tonnages and grades due to additional geological information gained through exploration.
- The Mineral Resources are estimated as chromitite tonnages and grades to reflect the grades of the various individual chromitite layers. Xstrata is currently mining the LG6 - and MG1 Chromitite Layers.
- The grade block models for Thornccliffe, Helena, Kroondal and Waterval have been updated during August 2009 with the latest geological information. A new block model for Horizon/Chromeden was constructed during the same period.

### Competent Person

PJG - Pieter-Jan Gräbe, Xstrata Alloys, (SACNASP). (Overall Responsibility for Resources and Reserves).

BS - Brian Smith, Xstrata Alloys, (PLATO). (Overall Responsibility for Resources and Reserves).

AM - Alfred Mabelane, Xstrata Alloys, (SACNASP). (Responsible for collection and validation of Resources data).

NM – Nathi Mntungwa, Xstrata Alloys, (SACNASP). (Overall Responsibility for Resources and Reserves).

DR - Dean Richards, Obsidian Consulting Services (SACNASP). Responsible for data validation, geostatistical analysis of data, Resource classification and construction of tonnage and grade block models and reporting of tonnage and grades from block models.

## Consolidated Vanadium Mineral Resource and Ore Reserve Statement

As at 30 June 2009

Tonnage are quoted in million metric tonnes  
Grades are quoted as % V<sub>2</sub>O<sub>5</sub>.

			ORE RESERVES			MINERAL RESOURCES			
		Mining		Proved	Probable	Measured	Indicated	Inferred	Competent
	% attributable	Method	Commodity	(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	Person
<b>Operating Mines</b>									
Rhovani	74.00%	OC	Magnetite Ore	13.86	12.3	39.27	41.2	128	PJG
			V <sub>2</sub> O <sub>5</sub>	0.48%	0.5%	0.51%	0.5%	0.5%	
<b>Total</b>				<b>13.86</b>	<b>12.3</b>	<b>39.27</b>	<b>41.2</b>	<b>128</b>	

### Definitions

OC = Opencast; UG = Underground

### Notes

- The Mineral Resources and Ore Reserve estimates are tabulated on a total mine basis as at 30<sup>th</sup> June 2009.
- The Measured - and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.
- Xstrata Alloy's vanadium mining operations are mining the vanadiferous magnetite deposits developed within the Bushveld Complex, South Africa. The Bushveld Complex is one of the largest known deposits of vanadiferous magnetite ore in the world. The magnetite ore is mined from shallow dipping (6° - 25°) stratified ore bodies. The magnetite ore is mined through opencast mining methods.
- Changes in the year on year tonnage and grade estimates are mainly due to mining depletion, reclassification and changes in the resource and reserve tonnages and grades due to additional geological information gained through exploration.
- Tacmin (Pty) Ltd (Open-pit Mine Engineering Consultants & Project Managers) estimated the Mineral Resources and Ore Reserves for Pit 1, Pit 2, Pit 4, Pit 5 and Pit 6 during 2008.
- The June 2009 Mineral Resource and Ore Reserve statement were depleted with the mined ROM tonnage during the period July 2008 to June 2009 to give the June 2009 estimate.
- Rhovani has embarked on extensive exploration drilling during the July 2008 – June 2009 reporting period. New geological block models are currently being constructed which will be followed by an opencast pit optimization and mine lay-out and scheduling exercise.

### Competent Person

PJG - Pieter-Jan Gräbe, Xstrata Alloys, (SACNASP). (Overall Responsibility for Resources and Reserves).

## Consolidated PGM Mineral Resource and Ore Reserve Statement

As at 30 June 2009

Tonnage are quoted in million metric tonnes  
Grades are quoted as 3PGE + Au g/t (Platinum, Palladium, Rhodium and Gold).

	% attributable	Mining Method	Commodity	ORE RESERVES		MINERAL RESOURCES			
				Proved	Probable	Measured	Indicated	Inferred	Competent
				(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	Person
<b>Operating Mines/Project</b>									
Mototolo JV	37.00%	UG/OC	UG2 Ore	9.548	5.39	15.942	25.05	10.3	BS/DR/CL
			3PGE + Au	3.91g/t	4.2g/t	4.12g/t	4.4g/t	4.4g/t	
Eland Platinum	73.99%	UG/OC	UG2 Ore	9.711	2.03	32.706	42.16	84.7	DN/DR/CL
			3PGE + Au	3.15g/t	3.0g/t	4.33g/t	4.2g/t	4.4g/t	
Ziikaatsnek	100.00%	UG/OC	UG2 Ore	-	0.21	-	4.06	0.1	DN/DR/CL
			3PGE + Au	-	2.1g/t	-	2.4g/t	2.4g/t	
Schieffontein	70.00%	UG/OC	UG2 Ore	-	-	-	1.11	19.3	DN/DR/CL
			3PGE + Au	-	-	-	2.2g/t	2.5g/t	
<b>Total tonnage and grade</b>			Tonne	19.259	7.66	48.648	72.38	114.5	
			3PGE + Au	3.53g/t	3.8g/t	4.26g/t	4.1g/t	4.1g/t	

### Definitions

OC = Opencast; UG = Underground

### Notes

#### • General

- The Mineral Resources and Ore Reserve estimates are tabulated on a total mine basis as at 30<sup>th</sup> June 2009.
- The Measured - and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.
- Xstrata Alloy's platinum mining operations are mining the platinum bearing UG2 Chromitite Layer of the Bushveld Complex, South Africa. The Bushveld Complex is the largest known deposit of PGM's in the world. The PGM ore at Mototolo Mine is mined from a shallow dipping (10° - 14°) tabular ore-body referred to as the UG2 Chromitite Layer. The chromitite layer is mined underground using a trackless mechanized mining method on a board-and-pillar mine lay-out design. The Eland Platinum Mine is also mining the UG2 Chromitite Layer dipping at 20°. Eland Platinum Mine is employing opencast mining methods to extract the ore and is currently in the process of developing an underground mine. The underground mine will be employing a hybrid mining method.
- The Mineral Resources were estimated at a minimum mining cut of 1.80m.
- Changes in the year on year tonnage and grade estimates are mainly due to mining depletion, reclassification and changes in the resource and reserve tonnages and grades due to additional geological information gained through exploration.

#### • Mototolo JV

- **Mineral Resources**
- In August 2009 the annual resource evaluation was conducted by Obsidian Consulting Services on behalf of Xstrata Alloys.
- **Ore Reserves**
- The Ore Reserves decreased from 16.396Mt to 14.942Mt.
- The Proved Ore Reserve tonnage increases from 4.853Mt to 9.548Mt.

#### • Eland Platinum

- The current Mineral Resource and Ore Reserve estimate contained in this report is based on an updated resource model.
- The geological facies, on which the Mineral Resources tonnages and grades are based, have been simplified.

### Competent Persons

BS - Brian Smith, Xstrata Alloys, (PLATO). Overall Responsible for Resources and Reserves.

DN - Daneal Nieuwoudt, Xstrata Alloys (SACNASP). Overall Responsible for Resources and Reserves.

DR - Dean Richards, Obsidian Consulting Services (SACNASP). Responsible for data validation, construction of tonnage and grade block models and reporting of tonnage and grades from block model.

CL - Carina Lemmer, Geological & Geostatistical Services (SACNASP). Responsible for geostatistical analysis of data and classification of Mineral Resources.

## Consolidated PGM Exploration Results Statement

As at 30 June 2009

Grades are quoted as 3PGE + Au g/t (Platinum, Palladium, Rhodium and Gold).

**Beestkraal -** The Beestkraal Project comprise of 4 farms situated along the Western Limb of the Bushveld Complex, located down dip of current Platinum Group Metals (PGM) producers, with a combined surface area of approximately 11 000ha. Exploration drilling has commenced during 2008/2009 under 4 new order prospecting rights. Ten vertical exploration boreholes have been completed to date. These boreholes targeted both the Merensky Reef and UG2 Chromitite Layer. The Merensky Reef is underlain by the UG2 Chromitite Layer with an average separation distance of approximately 100m. Both layers dip towards the north at a shallow 8° and the intersection depths of the Merensky Reef varied from 1846m to 2098m below topographical surface. Eight Merensky Reef intersections and five UG2 Chromitite Layer intersections have been sampled and assayed. The diamond drill core has been sampled over the mineralized zones as 15 cm half core samples. The samples have been assayed by an independent accredited laboratory.

The intersection widths for the Merensky Reef varied from 0.63m to 1.12m. A minimum cut-off grade of 1.5g/t 3PGE + Au was applied. The average intersection width was 0.89m. The sample length weighted grades (3PGE + Au g/t) for the Merensky Reef varied from 5.87g/t to 14.28g/t. The arithmetic average grade was 9.96g/t.

The intersection widths for the UG2 Chromitite Layer varied from 0.61m to 1.07m. No cut-off grade was applied. The average intersection width was 0.78m. The sample length weighted intersection grades (3PGE + Au g/t) for the UG2 varied from 6.43g/t to 6.72g/t. The arithmetic average grade (3PGE + Au g/t) was 6.58g/t.

An aeromagnetic survey was completed during 2009.

The drillhole information is insufficient to declare a Mineral Resource.

### Competent Person

JT – Johan Terblanche, Xstrata Alloys, (SACNASP)

**Madibeng -** The Madibeng Project is situated contiguous to Eland Platinum Mine and forms a natural extension of the Eland Platinum Mine. The project area comprises of the whole farm Hoekfontein 442 JQ and covers a surface area of approximately 3 247ha. Previous exploration boreholes confirmed the presence of the UG2 Chromitite Layer on the farm. The UG2 Chromitite Layer varies in depth below surface, starting at 800m below surface. This property is held under a new order prospecting right.

Xstrata has completed the 2009 exploration programme on Madibeng. The drilling programme consisted of 4 vertical core drilled boreholes. The exploration boreholes were concentrated in the area adjacent to the planned underground mining on Elandsfontein. The UG2 target depths varied from 1036m to 1 550m below surface. The mineralized zone was sampled at 15cm intervals. The core was split and the individual samples submitted for assaying to an independent laboratory. The samples were assayed for 3PGE's + Au. The individual sample results were composited and weighted against true sample width to obtain a true intersection and grade. The intersection true widths vary from 0.63m to 1.18m with an average of 0.78m. The 3PGE + Au sample length weighted grades vary from 1.79g/t to 3.73g.t with an arithmetic average grade of 2.60g/t.

The drillhole information is insufficient to declare a Mineral Resource.

Competent Person – DN.

### Competent Person

JT – Johan Terblanche, Xstrata Alloys, (SACNASP). (Overall Responsible for Exploration Results).  
DN – Daneal Nieuwoudt, Xstrata Alloys (SACNASP). (Overall Responsible for Exploration Results).

## Consolidated Coal Resource and Coal Reserve Statement

As at 30 June 2009

Tonnage are quoted in million metric tonnes

	% attributable	Mining Method	Commodity	COAL RESERVES				COAL RESOURCES				
				Run of Mine		Saleable		Measured	Indicated	Inferred	Competent	
				Proved	Probable	Proved	Probable					(Mt)
(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	(Mt)	Person			
Operating Mines												
Maloma Colliery	75.00%	UG/OC	Anthracite	3.060	0.41	1.285	0.17	6.051	0.73	2	PJG/ND	
<b>Total</b>				<b>3.060</b>	<b>0.41</b>	<b>1.285</b>	<b>0.17</b>	<b>6.051</b>	<b>0.73</b>	<b>2</b>		

### Definitions

OC = Opencast; UG = Underground

### Notes

- The Coal Resources and Coal Reserve estimates are tabulated on a total mine basis as at 30<sup>th</sup> June 2009.
- The Measured - and Indicated Coal Resources are inclusive of those Coal Resources modified to produce Coal Reserves.
- Maloma Colliery is mining anthracite from the "Coal Belt" of Swaziland. The coal is currently mined from a shallow dipping (10° - 14°) stratified coal seam. The coal seam, known as the Main Seam, is mined underground using a trackless mechanized mining method on a board-and-pillar mine lay-out design. The Coal Resource tonnage include the tonnage of the 30m Marker Seam in the 3# mining area, which is a seam developed 30m above the Main Seam and which has been mined in the past.
- Changes in the year on year tonnage estimates are mainly due to mining depletion, reclassification and changes in the resource and reserve tonnages due to additional geological information gained through exploration.
- The Coal Reserves have been estimated as Run-of-Mine Coal Reserves and Saleable Coal Reserves to reflect the mining dilution and overall coal recovery.
- The Coal Resources has been estimated by an independent consultant, GEMECS (Pty) Ltd, during September 2009.
- The Run-of-Mine Coal Resource Qualities is estimated for a float fraction at a wash density of 1.6mg/cm<sup>3</sup>. The float yield products with weighted averages of :- Ash content of 11.1%, VM (Volatile Matter) of 4.2% and a CV (Calorific Value) of 30.4MJ/kg.

### Competent Person

PJG - Pieter-Jan Gräbe, Xstrata Alloys (SACNASP). (Responsible for Reserve Modelling and Overall Responsible for Resources and Reserves). PJG is a mining geologist with 22 years experience in the mining industry which includes the commodities of coal, chrome, PGM's, vanadium and silica.

ND - Nico Denner, Gemecs (Pty) Ltd, Geological and Mine Evaluation Computer Services, (SACNASP). (Responsible for Resource Modelling). Nico Denner is a mining geologist with 5 years experience in coal exploration, coal resource modelling, coal production and consulting to the coal mining industry. In addition ND has 12 years experience in Platinum exploration, resource modelling and consulting to the platinum mining industry.

## Consolidated Silica Mineral Resource and Ore Reserve Statement

As at 30 June 2009

Tonnage are quoted in million metric tonnes  
Grades are quoted as % SiO<sub>2</sub>

	% attributable	Mining Method	Commodity	ORE RESERVES		MINERAL RESOURCES			
				Proved (Mt)	Probable (Mt)	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Competent Person
<b>Operating Mines</b>									
Rietvley Silica Mine	79.50%	OC	Silica Ore	-	-	-	26.21	-	PJG
			SiO <sub>2</sub>	-	-	-	97%	-	
<b>Total</b>				-	-	-	26.21	-	

### Definitions

OC = Opencast

### Notes

- The Mineral Resources and Ore Reserve estimates are tabulated on a total mine basis as at 30<sup>th</sup> June 2009.
- Xstrata Alloy's silica mining operation is mining a quartzite deposit of the Transvaal Super Group of South Africa. The quartzite ore (silica) is used as an additive in the ferrochrome manufacturing process. The ore is mined through opencast mining methods and the ROM (Run-of-Mine) ore is crushed, washed and sized on site to produce a final sized and quality graded product.
- Changes in the year on year tonnage and grade estimates are mainly due to mining depletion, reclassification of the Mineral Resource and/or Ore Reserve categories and changes in the resource and reserve tonnages and grades due to additional geological information gained through exploration.

### Competent Person

PJG - Pieter-Jan Gräbe, Xstrata Alloys (SACNASP) (Overall Responsibility for Resources).