

The Bisie Tin Project (80.75% owned through Alphamin's DRC registered subsidiary, ABM SA; 5% owned by the DRC Government and 14.25% by the Industrial Development Corporation of South Africa – IDC) contains two exceptional high-grade tin deposits, Mpama North and Mpama South located on mining licence, PE13155, within the Walikale District, roughly 180km west-northwest of the regional centre of Goma in the North Kivu Province. Both Mpama North and Mpama South cover 1.5km of a 14km long ridge, which borders on younger tin-bearing granitic intrusions to the west. In addition, a number of significant soil geochemical anomalies have been defined along the full extent of the ridge.



LOCATION OF THE ALPHAMIN LICENSES

Since drilling commenced in July 2012, the Company has drilled 171 resource holes for 35 681m at Mpama North and 16 holes for 3 095m at Mpama South. The initial focus was on Mpama North, where the latest resource update included a Measured Mineral Resource of **0.46 million tonnes at 4.31% tin for 19 600 tonnes of contained tin**, an **Indicated Mineral Resource of 4.14 million tonnes at 4.55% tin for 188 400 tonnes of contained tin** and an **Inferred Mineral Resource of 0.54 million tonnes at 4.25% tin for 22 800 tonnes of contained tin;** all using a cut-off of 0.5% tin. This represents a 34% increase in the Measured and Indicated category tin resources to that announced in October 2015. The updated DFS NI 43-101 report was filed in 27 June 2016.



MPAMA NORTH

Mineralisation at Mpama North is focused within two parallel high-grade chutes that plunge approximately 35° to the north, over approximately 700m in the down plunge direction. Mineralisation occurs as several narrow veins, blocks or disseminations of cassiterite hosted in a chlorite schist. The main zone of mineralisation generally occurs over thicknesses of between 2m and 22m with an average thickness of approximately 9m with narrow zones of discontinuous mineralisation developed in the hanging wall and footwall. The hanging wall zone occurs between 4m and 20m above the main zone, while the footwall zone occurs between 2m and 12m below the main zone. Tin mineralisation is strongly associated with copper, which was introduced in late stage fractures at Mpama North.

Tin mineralisation at Bisie is unique in its abundance of *wood tin*, see image below of NQ drill core shown true to scale. The maximum, solid cassiterite (*wood tin*) vein thickness recorded to date is 1.8m with veins of 40 to 80cm thickness being common within the high-grade chutes.



WOOD TIN FROM MPAMA NORTH

Mineralisation at Mpama North has a tabular geometry shown in section and has a strong structural control.

Highly significant results reported to date and included in the Mineral Resource at Mpama North include:

- **11.5m @ 12.29% tin** from 315.5m in BGC062
- **11m @ 13.4% tin** from 427m in BGC072
- **13.6m @ 7.59% tin** from 534.4m in BGC140
- 21.7m @ 7.44% tin from 300m, including 5.2m @ 15.75% tin from 315.5m in BGC127
- 18.4m @ 6.6% tin from 122.6m in BGC092
- 13m @ 5.76% tin from 386m, including 5.5m @ 7.47% tin from 388.5m in BGC130
- 15.85m @ 6.09% tin from 399.5m, including 3.75m @ 18.11% tin from 409.5m in BGC148
- 12.5m @ 10.93% tin from 336.7m, including 2.25m @ 49.87% tin from 346.95m in BGC165B
- 16.01m @ 22.5% tin from 387.45m, including 6.95m @ 38.45% tin from 390.2m in BGC166
- 13.8m @ 7.53% tin from 317.65m, including 4.5m @ 19.74% tin from 324.2m in BGC167













The updated Mineral Resource at Mpama North is comprised of a Measured Resource of **0.46 million** tonnes **@ 4.31% tin for 19 600 tonnes contained tin** and an Indicated Resource of **4.14 million tonnes @ 4.55% tin for 188 400 tonnes of contained tin** using a 0.5% tin cut-off, which jointly represents a 34% increase in contained tin to the Indicated Resource announced in October 2015. The top 50m of the deposit has been depleted by artisanal mining and any mineralisation remaining in the area was not included in the Mineral Resource.

Table 1: Bisie Mpama North Zone Mineral Resource at 0.50% tin Cut-off Grade, 11 May 2016							
Category	Tonnes	Tin	Tin tonnes	Copper	Zinc	Lead	Silver
	(millions)	%	(thousands)	%	%	ppm	g/t
Measured	0.46	4.31	19.6	0.22	0.12	0.007	1.4
Indicated	4.14	4.55	188.4	0.32	0.16	0.010	2.8
Total M&I	4.60	4.52	208.1	0.31	0.15	0.010	2.7
Inferred	0.54	4.25	22.8	0.16	0.09	0.013	1.4



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Table 1 Notes:

- 1. All tabulated data has been rounded and as a result minor computational errors may occur.
- 2. Mineral Resources, which are not Mineral Reserves have no demonstrated economic viability.
- 3. The Gross Mineral Resource for the Project (in which Alphamin holds an 84.55% interest) is reported.
- 4. *M&I is Measured and Indicated Mineral Resources.*

The robust and high-grade nature of the orebody shows that should the Mineral Resource be reported at a 2% tin cut-off grade, it decreases to **3.07 million tonnes @ 6.11% tin for 187 700 tonnes contained tin** in the Measured and Indicated Category and **0.33 million tonnes @ 6.21% tin for 20 200 tonnes contained tin** in the Inferred Category.

Mpama North Measured and Indicated Mineral Resource Grade Tonnage Table, 19 April 2016						
Cut-off	Tonnes	Tin	Tin tonnes	Copper	Zinc	Lead
tin %	(millions)	%	(thousands)	%	%	ppm
0.25	4.66	4.47	208.3	0.31	0.15	0.01
0.5	4.6	4.52	208.1	0.31	0.15	0.01
0.75	4.44	4.66	207.1	0.32	0.16	0.01
1	4.23	4.85	205.2	0.32	0.16	0.01
1.5	3.67	5.4	198.2	0.33	0.16	0.01
2	3.07	6.11	187.7	0.34	0.17	0.01

Mpama North Interred Mineral Resource Grade Tonnage Table, 19 April 2016						
Cut-off	Tonnes	Tin	Tin tonnes	Copper	Zinc	Lead
tin %	(millions)	%	(thousands)	%	%	ppm
0.25	0.55	4.17	22.9	0.16	0.09	0.012
0.5	0.54	4.25	22.8	0.16	0.09	0.013
0.75	0.51	4.4	22.7	0.17	0.09	0.013
1	0.48	4.63	22.4	0.17	0.1	0.013
1.5	0.38	5.58	21.1	0.19	0.1	0.014
2	0.33	6.21	20.2	0.19	0.11	0.014





Reserves were calculated from Measured and Indicated Mineral Resources only. Reserves generated from Measured Resources have been classified as proven reserves, while reserves generated from Indicated Resources have been classified as probable reserves. The table below shows a summary of the total ore reserves.

Ore reserve summary for Bisie Tin					
Ore reserve category	Tonnage (kt)	Tin grade (%)	Tin content (kt)		
Proven ore reserves	270	5.09	14		
Probable ore reserves	3,248	4.28	139		
Total ore reserves	3,517	4.34	153		



A financial model was developed on current reserves and includes the evaluation of all technical and economic issues relevant to the project. The results of the model show that the mine has a life of 12 years, returns a positive cash flow, with a post-tax NPV of \$167.79 million at a discount rate of 13.54 per cent and has a post-tax IRR of 48.4%. This confirms that the project is economically viable. A summary of the technical and economic parameters used in the financial model, as well as the main results of the model are shown in the table below.

Technical and economic parameters used in financi	al model	
Production		
Production rate	360	ktpa
Tonnes mined (LoM)	3.52	tonnes'million
Life of mine (LoM)	12	years
Tin (Sn) produced (LoM)	152.63	tonnes'000
Tin (Sn) recovery (LoM average)	71.62	%
Tin (Sn) recovered (LoM)	109.30	tonnes'000
Capital cost		
Total capital cost	126.07	US\$'million
Operating cost		
Total mine gate operating cost (LoM)	543.78	US\$'million
Mine gate operating cost (LoM average)	154.60	US\$/t milled
Mine gate operating cost (LoM average)	4 974.93	US\$/t tin
Total operating cost (LoM)	608.02	US\$'million
Total operating cost (LoM average)	172.87	US\$/t milled
Total operating cost (LoM average)	5 562.65	US\$/t tin
Tax and royalty		
Total tax paid (LoM)	231.41	US\$'million
Total royalty paid (LoM)	39.28	US\$'million
Total royalty paid (LoM average)	359.33	US\$/t tin
Total revenue		
Tin (Sn) price	17 300.00	US\$/t tin
Total revenue (LoM)	1 559.55	US\$'million
Financial metrics		
EBITDA (nominal)	1 007.27	US\$'million
EBIT (nominal)	855.66	US\$'million
Post-tax NPV ^{13.54}	167.79	US\$'million
Post-tax IRR	48.4	%
Operating margin	64.6	%
Payback period	23	months
Peak funding requirement	154.43	US\$'million



A 7 643kg bulk **metallurgical sample** was used for the metallurgical and piloting test work, which was performed at Maelgwyn Mineral Services and other contributing laboratories and equipment suppliers. The piloting returned > 70% tin recovery for a > 60 % tin concentrate, through mostly gravity concentration mineral processing methods

MPAMA SOUTH

Limited drilling has been carried out at Mpama South where tin mineralisation is focused within a chlorite altered unit similar to that at Mpama North and appears to have a similar high-grade plunging chute geometry. Two discrete zones of mineralisation were intersected at Mpama South: a high grade zinc, lead and silver zone in the hanging wall and sometimes coincident with the underlying tin, copper zone. A best result of **32.8m at 2.46% tin** from 192.2m was reported from BGH011 whereas best base and precious metal results, included **19m @ 197g/t silver, 17.7m @ 14.11% zinc and 14.75m @ 10.82% lead** from 61m in BGH001.



REGIONAL EXPLORATION

Soil sampling programmes have been completed over 14km of the Bisie Ridge, including Mpama North and South. Distinct and coherent tin (laboratory) and copper, arsenic, zinc and lead (Niton XRF) anomalies have been defined over the full extent of the Ridge. The Company has plans to initiate an Induced Polarisation; geophysical (IP) survey to better define the source of these anomalies for future follow up with drilling.



A pitting and trenching programme on adjacent PR10346 identified cassiterite grains in the overburden in two discrete areas. The areas lie to the west of the granite, which potentially sourced tin and other minerals at Bisie. Trenching exposed similar rock types to those that host the Mpama deposits, which supports the potential for a new discovery of the Bisie-style of mineralisation.





TIN AND COPPER IN SOIL ANOMALIES ON MPAMA RIDGE

Bisie Project upside

Alphamin has drill-tested only a very small portion of the Mpama Ridge. Further exploration targets include

• Mpama Deeps

- The Mpama North deposit has been drilled to a depth of 550m below surface and mineralisation remains open at depth
- o The high-grade chute is open down plunge and is expected to continue
- Best intersections are at depth on the northern most drill section
- Significant grades in the deeper area, include
 - 16.01m at 22.5% tin from 387.45m
 - 12.5m at 10.93% tin from 336.7m
 - 13.6m at 7.59% tin from 534.4m



Long section shows high-grade chute geometry, high-grade intercepts and mineralisation open at depth

- Mpama South
 - \circ $\,$ Only 16 holes have been drilled at Mpama South $\,$
 - o Results are similar to those of early-stage Phase 1-drilling at Mpama North
 - o Significant grades include



- 32m at 2.46% tin from 192.2m
- 6.7m at 2.34% tin from 146m
- \circ $\;$ Mineralisation is hosted in the same chlorite schist as at Mpama North
- o Mineralisation is potentially within a similar high-grade plunging chute

• Regional targets

- Well-developed tin and copper in soil anomalies along 14km of the Bisie Ridge
- o Tin mineralisation strongly associated with copper, arsenic, lead, zinc and silver
- Significant tin/copper/lead/zinc/arsenic soil anomalies defined over 14km of Bisie Ridge
- Tin potentially hosted within same geological setting as Mpama North
- Planned IP programme expected to better define potentially mineralised structures similar to those which host the Mpama deposits associated with soil anomalies along the Ridge to the north and south
- Cassiterite (SnO₂) identified in pitting on adjacent PR10346 will be followed up with drilling