

African Mineral Standards

AMIS0063

Certificate of Analysis

PGE Reference Material UG2 Reef (ore grade)

Recommended Concentrations and two "Between Laboratory" Standard Deviations

Certified Concentrations

Pt (NIS)	2.29	±	0.22	g/t
Pd (NIS)	1.54	±	0.14	g/t
Pd (Pb Collection)	1.53	±	0.14	g/t
Cr (F)	14.06	±	0.66	%
Cr (XRF)	13.78	±	0.74	%
Ni (P)	346	±	26	ppm
Specific Gravity	3.65	±	0.18	g/cc

Provisional Concentrations

Pt (Pb Collection)	2.24	±	0.28	g/t
Au (Pb Collection)	0.068	±	0.016	g/t
Rh (M/ICP)	0.47	±	0.10	g/t
Ru (NiS)	0.74	±	0.14	g/t
Ir (NiS)	0.18	±	0.04	g/t
Co (P)	22.2	±	4.8	ppm
Co (M/ICP)	173	±	48	ppm
Cu (P)	107	±	13.3	ppm
Cu (M/ICP)	102	±	12.3	ppm
Cu (XRF)	118	±	34	ppm
Ni (M/ICP)	1075	±	150	ppm
Ni (XRF)	1161	±	158	ppm

Indicated Means

Au (NIS) 0.06 g/t

4E 4.368 g/t

Intended Use: AMIS0063 is suitable for monitoring the accuracy of a single analysis of PGE, Cu and Ni ores hosted by UG2 Reef or other similar chromitite rich mafic rocks. The material can be used for routine quality control by inserting within a batch of samples, method development and for the calibration of equipment.

The recommended mean and "Between Lab" standard deviations for this standard reflect the average results from the laboratories that participated in the round robin. Slight variations in analytical procedures between laboratories will reflect as slight biases to the recommended concentrations and this is acceptable. Good laboratories however will report results within the two standard deviation levels with a failure of <10 %.

Origin of Material: This standard was made using Pt/Pd rich UG2 chromitite (UG2) material supplied by Anglo Platinum Limited from the Western limb of the Bushveld Complex. This specific material was made from a bulk sample collected underground from the East Shaft section of the Waterval Mine.

Approximate Mineral and Chemical Composition: AMIS0063 comprises approximately 50% UG2 Chromitite seam, 45% pegmatoidal pyroxenite footwall and 5% pyroxenite hanging wall. The UG2 Chromitite is composed of chromite (60-90% by volume), orthopyroxene (5-25%), plagioclase (5-15%) as well as accessory amounts of other minerals, of which the more important are clinopyroxene, base metal sulphides, platinum-group minerals, ilmenite and magnetite. The base metal sulphides are predominantly pentlandite, pyrrhotite, pyrite, chalcopyrite and to a lesser extent millerite. The Platinum Group Minerals identified in the UG2 are cooperite, laurite, braggite, Pt-Fe Alloy and sperrylite.

Major element chemistry data from 10 of the labs has been compiled but has not been certified. Summary statistics are set out in the table below.

	mean %	2SD	RSD%	n
Al ₂ O ₃	13.0	0.2	0.9	62
CaO	2.9	0.1	1.3	72
Cr ₂ O ₃	20.1	0.9	2.3	62
Fe ₂ O ₃	19.9	0.7	1.9	69
K ₂ O	0.12	0.01	6.2	78
MgO	14.9	0.3	1.0	76
MnO	0.19	0.02	5.8	62
Na ₂ O	0.49	0.04	4.4	70
P ₂ O ₅	0.09	0.00	2.4	49
S	0.05	0.01	12.4	39
SiO ₂	27.8	1.0	1.7	78
TiO ₂	0.57	0.04	3.2	71
V ₂ O ₅	0.17	0.01	3.8	45

Additional trace element data is available for this product on request.

Appearance: The material is a very fine powder. It is coloured a Light Brownish Grey (Corstor 5YR 6/2).

Method of Preparation: The material was crushed, dry-milled and air-classified to <54µm. Wet sieve particle size analysis of random samples confirmed the material was 98.5% <54µm. It was then blended in a bi-conical mixer, systematically divided and then sealed into 1kg Laboratory

Packs. Explorer Packs are subdivided from the Laboratory packs as required. Samples were randomly selected for homogeneity testing and third party analysis. Statistical analysis of both homogeneity and the consensus test results were carried out by independent statisticians.

Methods of Analysis:

1. Pt, Pd and Au. ICP-OES or ICP-MS, Pb collection with Ag as a co-collector.
2. Au, Pt, Pd, Rh, Ru and Ir. ICP-MS, nickel sulphide collection.
3. Cu and Ni. Multi-acid total digestion, including HF, with ICP-OES finish.
4. Cu and Ni. Aqua regia digestion with ICP-OES finish.
5. Cr, Co, Cu and Ni. Pressed pellet XRF.
6. Cr, Co, Cu and Ni. Fusion, ICP-OES or ICP-MS
7. Specific Gravity. Gas pycnometer.
8. XRF (major elements).
9. Multi acid digest ICP scan – trace elements.

Additionally, XRF analyses were requested for the major elements and a multi-element multi acid digest and ICP scan was requested for the trace elements.

Information requested:

1. Aliquots used for all determinations.
2. Results for individual PGM's reported in ppb.
3. Results for base metals reported in ppm.
4. QC data, to include replicates, blanks and certified reference materials used.
5. Analytical techniques used.

Method of Certification: 29 laboratories were each given eight randomly selected packages of sample and results were used for the determinations below. One additional sample of a different certified material was submitted as a QC check. Round robin results for the analyses that resulted in Certification are displayed. These include:

- Pt and Pd by the NiS method;
- Pt and Pd analyses by the Pb collection method;
- Cu, Ni, Co and Cr by the aqua regia digestion method (P), the multi-acid digestion method (T), the Fusion ICP method (F) and by XRF.
- SG by either water or gas displacement in a pycnometer.

The mean and standard deviation for all data was calculated. Outliers were defined as samples beyond the mean \pm 2 Standard Deviations from all data. These outliers were removed from the data (shown in red) and a new mean and standard deviation was determined. This method is different from that used to calculate the Confidence Interval shown on many Government-produced standards in that the actual "between-laboratory" standard deviation is used in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses. The limits can therefore be used to monitor accuracy from individual analyses, unlike the Certified Limits published on other standards which quote a Confidence Interval.

Participating Laboratories: The 27 laboratories that provided results timeously were (not in same order as in the table of assays):

1. ACME Analytical Laboratories Ltd., (Canada).
2. Activation Laboratories Ltd., (ActLabs, Ancaster, ON, Canada).
3. ALS Chemex South Africa (Pty) Ltd.
4. ALS Chemex, (Perth, Australia).
5. ALS Chemex, (Vancouver, Canada).

6. Ammtec Ltd., (Western Australia).
7. Anglo Platinum, Eastern Bushveld Regional Laboratory (South Africa).
8. Anglo Platinum, PPL Assay Laboratory (South Africa).
9. Anglo Research (Crown Campus, South Africa).
10. Anglo Research (Germiston Campus, South Africa)
11. Assayers Canada, (Vancouver).
12. Becquerel Laboratories, (Canada).
13. Genalysis Laboratory Services (Pty) Ltd., (Australia).
14. Geoscience Laboratories, (Geo Labs, Sudbury, Canada).
15. Intertek Testing Services (China)
16. Labtium Inc. (Finland)
17. Metchem Laboratories
18. Nkomati JV Laboratory
19. OMAC Laboratories (Ireland).
20. Pt Intertek Utama Services (Intertek, Indonesia)
21. Set Point Laboratories (Pty) Ltd (South Africa)
22. Set Point Labs (Mokopane)
23. SGS Lakefield Research (Canada)
24. SGS Lakefield Research Africa (Pty) Ltd. (Joburg, South Africa)
25. SGS Welshpool (Australia).
26. Ultra Trace (Pty) Ltd. (Australia)
27. Zimplats Assay Laboratory (Zimbabwe)

Assay Data: Data as received from the laboratories for the important certified elements listed on p1 is set out below.

Lab Code	Au (NIS) g/t	Au (PbColl) g/t	Co (M/ICP) ppm	Co (P) ppm	Cr (F) ppm	Cr (XRF) ppm	Cu (M/ICP) ppm	Cu (P) ppm	Cu (XRF) ppm	Ir (NIS) g/t	Ni (M/ICP) ppm	Ni (P) ppm	Ni (XRF) ppm	Pd (NIS) g/t	Pd (PbColl) g/t	Pt (NIS) g/t	Pt (PbColl) g/t	Rh M/ICP g/t	Ru (NIS) g/t	SG (pycno) g/cc
A	0.07	108	26	122481		105	109				861	363			1.61		2.49			
A	0.07	108	25	126401		105	108				812	354			1.60		2.48			
A	0.07	98	24	129104		107	107				766	359			1.60		2.56			
A	0.07	104	25	124824		108	108				803	355			1.60		2.51			
A	0.07	98	25	128071		110	105				771	354			1.58		2.48			
A	0.07	96	25	126723		107	109				764	354			1.60		2.50			
A	0.07	110	24	126536		104	107				871	355			1.60		2.50			
A	0.07	106	24	123160		107	109				799	360			1.63		2.49			
B	0.06	0.06	164	18		142950	119	104	130	0.18	1064	321	1136	1.50	1.47	2.25	2.20	0.47	0.80	3.65
B	0.09	0.06	167	19		143205	118	105	130	0.17	1079	327	1151	1.59	1.51	2.34	2.29	0.48	0.81	3.63
B	0.07	0.06	159	19		143068	112	104	130	0.17	1064	324	1142	1.51	1.53	2.23	2.28	0.48	0.80	3.67
B	0.06	0.06	152	20		142781	111	105	131	0.15	1051	328	1138	1.51	1.44	2.12	2.14	0.46	0.80	3.64
B	0.07	0.06	156	20		143217	112	107	129	0.15	1045	336	1137	1.60	1.43	2.27	2.10	0.47	0.77	3.66
B	0.06	0.06	150	20		142829	111	104	128	0.17	1046	335	1125	1.49	1.50	2.12	2.28	0.47	0.79	3.65
B	0.11	0.07	159	20		142853	114	106	130	0.17	1081	337	1138	1.83	1.50	2.48	2.25	0.51	0.85	3.64
B	0.08	0.06	160	20		142967	114	109	130	0.22	1084	334	1140	1.54	1.49	2.22	2.22	0.48	0.78	3.65
C	0.07														1.51		2.33			
C	0.07														1.52		2.37			
C	0.07														1.47		2.25			
C	0.08														1.51		2.33			
C	0.07														1.50		2.25			
C	0.08														1.56		2.36			
C	0.07														1.38		2.08			
C	0.07														1.58		2.42			
D		142	19			138851	105	116				371	1200							
D		141	19			138851	105	117				373	1200							
D		142	19			138851	107	117				375	1200							
D		144	19			137483	108	117				378	1200							
D		142	19			138851	108	116				371	1200							
D		140	20			138851	106	123				386	1200							
D		148	19			138851	110	119				374	1200							
D		144	20			138851	107	122				382	1200							
E		0.15	190	23		138000	100	100		0.19	1100	330	1100	1.45	1.48	2.11	2.27	0.62	0.70	3.64
E		0.12	200	23		137000	100	100		0.21	1100	330	1100	1.69	1.56	2.40	2.39	0.48	0.78	3.57
E		0.11	190	23		135000	100	100		0.19	1100	330	1100	1.39	1.41	2.08	2.08	0.52	0.70	3.61
E		0.10	190	23		137000	100	100		0.20	1100	330	1100	1.59	1.51	2.30	2.23	0.43	0.66	3.61
E		0.18	180	23		130000	101	110		0.20	1000	330	1100	1.51	1.58	2.25	2.37	0.53	0.71	3.62
E		0.26	190	23		135000	100	110		0.19	1100	340	1200	1.54	1.57	2.26	2.24	0.56	0.71	3.59
E		0.17	200	22		135000	110	100		0.20	1200	330	1100	1.45	1.51	2.13	2.25	0.55	0.70	3.61
E		0.10	190	23		140000	106	110		0.21	1000	340	1100	1.58	1.61	2.37	2.39	0.45	0.71	3.61
F	0.02	0.07	58	20		135000	110	110	122	0.13	600	360	1252	1.51	1.51	2.33	2.23	0.52	0.72	3.70
F	0.06	0.07	57	20		135000	100	110	123	0.13	600	370	1250	1.61	1.41	2.34	2.10	0.55	0.76	3.71
F	0.09	0.07	76	20		135000	100	110	124	0.13	690	360	1266	1.53	1.52	2.29	2.25	0.52	0.73	3.67
F	0.04	0.07	65	20		135000	100	110	122	0.15	630	370	1251	1.47	1.48	2.27	2.19	0.49	0.80	3.68
F	0.05	0.06	53	20		135000	98	110	123	0.13	550	360	1252	1.57	1.46	2.30	2.16	0.54	0.79	3.68
F	0.04	0.07	73	20		135000	100	110	121	0.14	640	360	1255	1.52	1.50	2.25	2.20	0.50	0.73	3.69
F	0.04	0.06	63	20		136000	95	110	123	0.15	590	360	1265	1.56	1.41	2.29	2.09	0.52	0.77	3.64
F	0.04	0.06	86	20		135000	100	110	123	0.13	730	360	1259	1.51	1.45	2.20	2.15	0.56	0.70	3.64

Assay data (cont)

Lab Code	Au (NIS) g/t	Au (PbColl) g/t	Co (M/ICP) ppm	Co (P) ppm	Cr (F) ppm	Cr (XRF) ppm	Cu (M/ICP) ppm	Cu (P) ppm	Cu (XRF) ppm	Ir (NIS) g/t	Ni (M/ICP) ppm	Ni (P) ppm	Ni (XRF) ppm	Pd (NIS) g/t	Pd (PbColl) g/t	Pt (NIS) g/t	Pt (PbColl) g/t	Rh M/ICP g/t	Ru (NIS) g/t	SG (pyono) g/cc	
G	0.06	0.07	185	21	142000	136799	100	109		0.19	1180	340		1.57	1.71	2.45	2.44	0.52	0.79	3.70	
G	0.07	0.07	185	21	141000	136799	95	108		0.19	1160	337		1.58	1.59	2.40	2.35	0.51	0.75	3.68	
G	0.07	0.07	190	21	142000	136115	100	106		0.18	1180	343		1.58	1.57	2.38	2.31	0.52	0.76	3.68	
G	0.08	0.07	180	20	140000	136115	100	106		0.18	1190	342		1.64	1.60	2.38	2.37	0.52	0.80	3.63	
G		0.06	185	21	139000	136799	100	107			1180	342			1.63		2.37				3.62
G	0.07	0.07	185	20	141000	136115	95	111		0.19	1200	345		1.64	1.50	2.49	2.21	0.53	0.85	3.64	
G	0.07	0.07	195	22	140000	136799	100	110		0.19	1190	349		1.60	1.51	2.35	2.27	0.51	0.78	3.68	
G		0.07	180	23	145000	136799	100	111			1200	356			1.53		2.27				3.62
H		0.08						130				640			1.62		2.36				
H		0.06						170				680			1.54		2.46				
H		0.08						120				870			1.46		2.30				
H		0.07						120				920			1.67		2.58				
H		0.07						130				890			1.38		2.12				
H		0.07						120				600			1.56		2.51				
H		0.09						120				550			1.65		2.75				
H		0.09						150				890			1.56		2.47				
I	0.06		186	23			97	103	148	0.16	1148	330	1805	1.55		2.19		0.45	0.73		
I	0.06		177	23			94	104	149	0.16	1093	331	1807	1.55		2.18		0.45	0.72		
I	0.06		181	23			95	105	147	0.16	1122	337	1812	1.57		2.23		0.45	0.74		
I	0.07		181	23			95	101	149	0.16	1118	327	1802	1.56		2.21		0.46	0.75		
I	0.06		182	23			95	102	147	0.16	1119	330	1806	1.56		2.24		0.46	0.73		
I	0.06		175	23			94	106	145	0.16	1083	337	1806	1.57		2.23		0.46	0.73		
I	0.06		178	23			94	104	147	0.17	1097	333	1805	1.57		2.25		0.46	0.74		
I	0.06		177	23			93	104	147	0.17	1086	334	1818	1.58		2.27		0.47	0.74		
J	0.07									0.18				1.51		2.17		0.47	0.73		
J	0.06									0.18				1.54		2.24		0.47	0.74		
J	0.06									0.18				1.59		2.27		0.50	0.74		
J	0.06									0.19				1.60		2.32		0.50	0.77		
J	0.07									0.19				1.60		2.34		0.50	0.75		
J	0.07									0.18				1.55		2.24		0.48	0.73		
J	0.06									0.19				1.57		2.28		0.49	0.75		
J	0.06									0.18				1.59		2.23		0.49	0.77		
K		0.09	198	21		141587	110	98			1130	283			1.50		2.63				
K	0.09		200	20		141587	109	100			1120	285			1.52		2.52				
K	0.08		196	22		139535	108	100			1120	286			1.47		2.52				
K	0.08		200	22		140903	109	99			1160	286			1.56		2.72				
K	0.08		200	21		139535	107	98			1100	285			1.51		2.69				
K	0.07		194	22		140903	106	99			1150	288			1.26		2.35				
K	0.08		201	21		138851	108	99			1070	287			1.52		2.75				
K	0.08		197	22		139535	110	99			1100	287			1.54		3.00				
L	0.05	0.06	137	24		133700	92	110		0.15	900	352		1.22	1.60	2.09	2.13	0.38	0.57		
L	0.05	0.06	132	26		134300	92	112		0.17	871	359		1.33	1.61	2.25	2.23	0.41	0.64		
L	0.06	0.06	134	26		134200	91	109		0.16	894	350		1.30	1.57	2.17	2.14	0.40	0.63		
L	0.05	0.06	155	26		134300	91	111		0.16	982	360		1.27	1.55	2.10	2.14	0.39	0.61		
L	0.05	0.05	129	26		133800	94	112		0.17	865	359		1.31	1.53	2.20	2.03	0.40	0.62		
L	0.05	0.06	139	26		134200	94	111		0.16	914	356		1.27	1.49	2.19	2.14	0.39	0.61		
L	0.06	0.07	145	27		134200	90	113		0.16	925	362		1.30	1.58	2.24	2.24	0.40	0.63		
L	0.05	0.06	123	26		134200	88	109		0.17	831	349		1.32	1.60	2.23	2.25	0.40	0.64		
M	0.07	0.07	220	20	154897		100	110			1110	350			1.60		2.42			3.43	
M	0.06	0.06	210	20	145985		90	110			1070	360			1.58		2.45			3.45	
M	0.09	0.09	210	20	141245		90	110			1090	350			1.59		2.46			3.39	
M	0.07	0.07	220	20	146648		100	110			1140	350			1.60		2.49			3.43	
M	0.07	0.07	220	20	147661		100	110			1100	350			1.57		2.44			3.39	
M	0.07	0.07	210	20	149248		90	110			1080	350			1.60		2.48			3.37	
M	0.07	0.07	210	20	151915		100	110			1090	350			1.56		2.44			3.45	
M	0.08	0.08	220	20	148591		100	120			1110	360			1.60		2.51			3.42	
N	0.05	0.06	180	28		135000	105	112	103	0.18	1030	442	1140	1.45	1.43	2.37	2.02	0.42	0.65	3.66	
N	0.05	0.05	176	30		136000	102	121	105	0.19	1010	478	1150	1.48	1.38	2.45	1.89	0.43	0.67	3.66	
N	0.05	0.05	179	30		136000	103	116	109	0.18	1040	465	1140	1.39	1.43	2.27	2.01	0.40	0.61	3.61	
N	0.05	0.06	181	28		136000	104	111	107	0.19	1040	430	1160	1.45	1.48	2.35	2.07	0.42	0.67	3.72	
N	0.05	0.05	175	28		135000	101	114	109	0.18	1010	454	1160	1.44	1.51	2.33	2.08	0.42	0.65	3.70	
N	0.04	0.05	183	28		135000	108	119	104	0.19	1060	454	1150	1.43	1.43	2.33	2.00	0.39	0.61	3.62	
N	0.05	0.05	176	30		136000	98	121	107	0.19	1010	463	1160	1.42	1.41	2.31	2.01	0.39	0.61	3.67	
N	0.04	0.05	179	29		135000	100	115	105	0.19	1020	446	1140	1.44	1.53	2.31	2.18	0.40	0.60	3.64	
O	0.07	0.07	150	22	138000		97	106	110		1020	344	1200		1.32		2.00			3.29	
O	0.06	0.06	148	22	135000		94	108	140		997	352	1160		1.30		1.93			3.31	
O	0.06	0.06	155	23	139500		99	110	130		1030	358	1180		1.30		1.97			3.19	
O	0.06	0.06	141	23	140000		90	109	120		928	352	1210		1.48		1.96			3.17	
O	0.07	0.07	150	23	138000		97	109	120		1020	360	1220		1.44		2.22			3.19	
O	0.05	0.05	151	22	135500		97	109	120		1030	351	1200		1.58		2.06			3.20	
O	0.06	0.06	150	23	146000		97	113	120		1010	357	1220		1.46		2.28			3.21	
O	0.06	0.06	152	22	146500		99	105	110		1030	339	1200		1.76		2.28			3.19	
P	0.08	0.08	177	23		132353	104	105	100		1010	358	1030		1.56		2.40			3.51	
P	0.08	0.08	179	23		132490	102	104	110		1020	354	1030		1.48		2.28			3.45	
P	0.08	0.08	186	22		132285	103	102	100		1040	350	1030		1.53		2.40			3.50	
P	0.07	0.07	185	23		132148	102	117	100		1020	328	1020		1.47		2.28			3.52	
P	0.08	0.08	179	22		132285	98	117	100		988	342	1020		1.49		2.33			3.43	
P	0.09	0.09	171	23		132627	94	104	110		958	353	1030		1.48		2.30			3.64	
P	0.08	0.08	181	22		132627	100	101	100		1020	351	1020		1.54		2.38			3.46	
P	0.09	0.09	174	23		132216	96	103	110		1030	351	1030		1.53		2.37			3.46	
Q	0.06	0.06	117	20			106	100			1130	3									

Assay data (cont)

Lab Code	Au (NIS) g/t	Au (PbColl) g/t	Co (M/ICP) ppm	Co (P) ppm	Cr (F) ppm	Cr (XRF) ppm	Cu (M/ICP) ppm	Cu (P) ppm	Cu (XRF) ppm	Ir (NIS) g/t	Ni (M/ICP) ppm	Ni (P) ppm	Ni (XRF) ppm	Pd (NIS) g/t	Pd (PbColl) g/t	Pt (NIS) g/t	Pt (PbColl) g/t	Rh M/ICP g/t	Ru (NIS) g/t	SG (pyono) g/cc
T		0.06	240		140200		170				1100				1.40		2.05			
T		0.07	240		139000		130				1100				1.57		2.29			
T		0.07	250		139700		130				1000				1.56		2.27			
T		0.06	230		139700		120				1100				1.41		2.06			
T		0.06	240		140100		100				950				1.44		2.13			
T		0.07	240		139400		150				1100				1.47		2.18			
T		0.07	220		139700		190				1000				1.50		2.18			
T		0.07	250		139200		170				1100				1.52		2.17			
U									177				1270		1.46		2.31	0.44		3.74
U									180				1271		1.41		1.94	0.43		3.74
U									178				1272		1.53		2.29	0.47		3.71
U									180				1278		1.29		2.09	0.39		3.75
U									180				1275		1.39		2.09	0.42		3.73
U									179				1279		1.32		2.10	0.40		3.71
U									176				1274		1.23		1.84	0.37		3.72
U									176				1275		1.31		2.05	0.40		3.73
V	0.08					112285			1600	0.21			2800	1.73		2.56		0.53	0.84	
V	0.68					112442			1600	0.21			2800	1.76		2.64		0.54	0.87	
V	0.08					114022			1600	0.22			2800	1.72		2.56		0.52	0.84	
V	0.08					112750			1500	0.22			2800	1.76		2.63		0.54	0.88	
V	0.68					112914			1600	0.22			2800	1.64		2.49		0.52	0.83	
V	0.07					112736			1500	0.22			2800	1.64		2.52		0.52	0.85	
V	0.07					113475			1600	0.21			2800	1.72		2.68		0.55	0.88	
V	0.07					112969			1500	0.24			2800	1.76		2.75		0.56	0.91	
W		0.07	164	25			95	98			897	321			1.48		2.21			
W		0.06	179	25			103	99			984	321			1.43		2.13			
W		0.07	172	26			98	102			964	345			1.51		2.26			
W		0.06	174	25			96	101			987	332			1.49		2.21			
W		0.06	161	26			97	103			903	339			1.49		2.25			
W		0.07	189	26			106	101			1000	343			1.40		2.11			
W		0.07	196	26			109	102			1000	334			1.53		2.32			
W		0.06	185	25			103	94			996	313			1.57		2.36			
X																				
X																				
X																				
X																				
X																				
X																				
X																				
Y	0.05	0.08				138000				0.11			1200	1.60		1.30		0.32	0.53	
Y	0.07	0.09				139000				0.14			1200	1.50		1.70		0.41	0.66	
Y	0.06	0.08				141000				0.12			1200	1.50		1.40		0.32	0.54	
Y	0.07	0.08				141000				0.13			1200	1.40		1.50		0.32	0.60	
Y	0.06	0.09				137000				0.14			1200	1.60		1.60		0.37	0.65	
Y	0.06	0.08				136000				0.11			1200	1.40		1.40		0.33	0.53	
Y	0.07	0.07				144000				0.15			1200	1.60		1.80		0.42	0.68	
Y	0.06	0.07				141000				0.13			1200	1.40		1.60		0.34	0.68	
Z	0.07	0.08	180	27		143705	111	98	96	0.18	1147	341	1050	1.64	1.64	2.53	2.40	0.50	0.78	3.69
Z	0.07	0.08	177	27		143327	110	94	95	0.18	1134	334	1046	1.63	1.63	2.52	2.39	0.51	0.77	3.73
Z	0.07	0.07	176	27		143670	110	99	96	0.18	1131	344	1048	1.61	1.63	2.48	2.42	0.50	0.77	3.73
Z	0.07	0.07	175	26		144069	111	98	95	0.18	1131	329	1045	1.65	1.65	2.51	2.44	0.51	0.79	3.73
Z	0.07	0.07	173	28		144931	108	104	96	0.18	1114	354	1063	1.62	1.64	2.49	2.44	0.50	0.77	3.74
Z	0.07	0.07	173	29		144260	108	100	96	0.18	1110	357	1054	1.62	1.62	2.46	2.47	0.51	0.78	3.74
Z	0.07	0.07	178	26		145062	110	93	96	0.18	1141	337	1058	1.62	1.63	2.48	2.36	0.50	0.76	3.72
Z	0.07	0.08	175	27		144093	108	91	98	0.17	1111	346	1055	1.59	1.66	2.45	2.42	0.50	0.77	3.72
ZA			300		137141		130				1480									
ZA			300		137551		140				1490									
ZA			310		138372		120				1490									
ZA			300		138167		120				1450									
ZA			310		137073		120				1470									
ZA			300		136183		120				1450									
ZA			300		138030		120				1460									
ZA			300		137415		110				1460									
ZB				38	141810			130					447							
ZB				39	142761			120					455							
ZB				36	139730			118					448							
ZB				38	142844			116					445							
ZB				37	142085			115					439							
ZB				38	142076			117					456							
ZB				37	141652			115					452							
ZB				36	142703			114					439							

Availability: This product is available in Laboratory Packs containing 1kg of material and Explorer Packs containing custom weights (from 50 to 250g) of material. The Laboratory Packs are sealed bottles delivered in sealed foil pouches. The Explorer Packs contain material in standard geochem envelopes, nitrogen flushed and vacuum sealed in foil pouches.

Legal Notice: This certificate and the reference material described in it have been prepared with due care and attention. However AMIS, Set Point Technology (Pty) Ltd, Mike McWha, Dr Barry Smee and Smee and Associates Ltd; accept no liability for any decisions or actions taken following the use of the reference material.

24 May 2008

Certifying Officers:



African Mineral Standards: _____
Mike McWha
BSc (Hons), FGSSA, MAusIMM, Pr.Sci.Nat



Geochemist: _____
Barry W. Smee
BSc, PhD, P.Geo, (B.C.)