

African Mineral Standards

Certificate of Analysis

Platreef High Feed Grade
Platinum Ore Reference Material AMIS0022

Recommended Concentrations and two "Between
Laboratory" Standard Deviations

Certified Concentrations

Pt (NIS)	2.31	+ -	0.23	g/t
Pt (Pb Collection)	2.26	+ -	0.16	g/t
Pd (NIS)	3.31	+ -	0.26	g/t
Pd (Pb Collection)	3.23	+ -	0.17	g/t
Au (Pb Collection)	0.43	+ -	0.04	g/t
Rh	0.21	+ -	0.02	g/t
Ru (NiS)	0.20	+ -	0.02	g/t
Cr (XRF)	1373	+ -	89	ppm
Cu (P)	1127	+ -	67	ppm
Cu (T)	1132	+ -	88	ppm
Cu (XRF)	1148	+ -	80	ppm
Cu (F)	1147	+ -	154	ppm
Ni (P)	1940	+ -	222	ppm
Ni (T)	2083	+ -	219	ppm
Ni (XRF)	2106	+ -	169	ppm
Ni (F)	2167	+ -	248	ppm
Co (P)	102	+ -	7.9	ppm
Co (T)	112	+ -	10.2	ppm
Specific Gravity	3.06	+ -	0.2	gm/cc

Provisional Concentrations

Au (NIS)	0.41	+ -	0.07	g/t
Co (XRF)	108	+ -	10	ppm
Co (F)	116	+ -	31	ppm

Indicated Means

Ir (NiS)	0.056	g/t
Cr (Total)	1229	ppm
Cr (F)	1364	ppm

Intended Use: AMIS0022 is suitable for monitoring the accuracy of a single analysis of PGE, Cu and Ni ores hosted by Platreef or other similar 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 Platreef material from the northern limb of the Bushveld Complex supplied by Anglo Platinum Limited. Platreef is a Pt/Pd/Ni/Cu ore. This specific material was obtained from the open pit, PPRust Mine.

Approximate Mineral and Chemical Composition: AMIS0022 comprises approximately 65% B-Pyroxenite, 30% A-Pyroxenite and <5% Serpentinite. Mineralization in this Platreef comprises 2-5% disseminated or net textured magmatic sulphides, mainly pyrrhotite, pentlandite and chalcopyrite. The PGE's occur as micron-sized satellite grains around but rarely within the sulphides.

SiO ₂	MgO	CaO	Fe ₂ O ₃	AL ₂ O ₃	S	Na ₂ O
42.6	18.5	15.8	9.005	6.5	0.455	0.43
MnO	TiO ₂	K ₂ O	Cr ₂ O ₃	V ₂ O ₅	CL	LOI
0.415	0.315	0.135	0.11	0.015	0.015	4.4

Appearance: The material is a very fine powder coloured light bluish grey (Munsell 5B 7/1) to light grey (Corstor 5Y 7/1).

Method of Preparation: The material was crushed, dry-milled and air-classified to <54um. Wet sieve particle size analysis of random samples confirmed the material was 99.7% <54um. 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.

Method of Analysis:

1. Pt, Pd, Au and Ru. Nickel sulphide collection, ICP-OES or ICP-MS.
2. Pt, Pd and Au. Pb collection with Ag as a co-collector, ICP-OES or ICP-MS.
3. Pt, Pd, Au, Rh, Ru, Ir. NiS collection, ICP-OES or ICP-MS.
4. Co, Cu and Ni. Multi-acid total digestion, including HF, ICP-OES or ICP-MS.
5. Cr, Co, Cu and Ni. Fusion, ICP-OES or ICP-MS
6. Co, Cu and Ni. Aqua regia digestion with ICP-OES or ICP-MS.
7. Cr, Co, Cu and Ni. Fusion or Pressed Pellet, XRF.
8. SG. Gas pycnometer.

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: Thirty laboratories were each given nine samples including eight randomly selected packages of sample with one sample of certified reference material for QC purposes. Various results from the twenty one laboratories that reported back timeously were used for the determinations. The following round robin results are displayed:

- Pt and Pd analyses by the Pb collection method;
- Rh analyses by NiS and Fire Assay;
- Cr, Cu, Ni and Co by XRF;
- Ni by the multi-acid (total -T) digestion method;
- Cu, Ni and Co by the aqua regia (partial- P) digestion method.
- Cr, Cu and Ni by the Fusion (F) method.
- Specific gravity by water or gas 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 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.

The tables below represent raw data received from the laboratories.

Lab Code	Pt (NIS)	Pt (Pb)	Pd (NIS)	Pd (Pb)	Au (Pb)	Rh	Ru (NIS)	Cr (XRF)	Cu (P)	Cu (T)	Cu (XRF)	Cu (F)	Ni (P)	Ni (T)	Ni (XRF)	Ni (F)	Co (P)	Co (T)	SG
A		2.370		3.350	0.440			1390	1160	1110	1160		2050	1870	2180		103	111	3.18
A		2.260		3.220	0.424			1380	1180	1100	1170		2080	1870	2210		103	108	3.15
A		2.230		3.210	0.426			1380	1170	1100	1150		2080	1870	2210		103	108	3.18
A		2.270		3.210	0.449			1380	1170	1110	1170		2070	1880	2220		102	110	3.16
A		2.380		3.370	0.440			1380	1160	1130	1180		2060	1900	2210		102	112	3.16
A		2.270		3.260	0.435			1390	1160	1170	1180		2070	1920	2210		102	111	3.22
A		2.320		3.350	0.440			1370	1150	1150	1170		2050	1870	2210		102	107	3.27
A		2.240		3.270	0.415			1400	1180	1130	1210		2100	1870	2270		104	108	3.19
B		2.360		3.350	0.440				1156	1171		1000	1980	2149		2000	114	123	
B		2.300		3.260	0.460				1152	1137		1000	1935	2090		2000	109	118	
B		2.330		3.300	0.420				1160	1148		1100	1992	2109		2000	109	112	
B		2.350		3.280	0.440				1122	1149		1000	1944	2104		2000	106	118	
B		2.310		3.240	0.470				1114	1133		1100	1985	2071		1900	110	120	
B		2.320		3.330	0.470				1088	1153		1000	1965	2108		1900	111	122	
B		2.390		3.370	0.450				1166	1133		1000	1998	2072		1900	112	126	
B		2.320		3.300	0.450				1150	1132		1100	1953	2063		1900	105	116	
C		2.290		3.300	0.480				1120			1168	1977			2005	100		
C		2.200		3.210	0.430				1168			1123	2090			2038	107		
C		2.240		3.270	0.450				1087			1039	1932			2032	96		
C		2.260		3.290	0.460				1171			1045	2091			2037	106		
C		2.280		3.300	0.470				1116			1055	1999			2051	101		
C		2.230		3.240	0.460				1162			1051	2085			2050	109		
C		2.290		3.240	0.450				1129			968	2020			2026	103		
C		2.290		3.290	0.460				1160			263	2081			2030	108		

Lab Code	Pt (NIS)	Pt (Pb)	Pd (NIS)	Pd (Pb)	Au (Pb)	Rh	Ru (NIS)	Cr (XRF)	Cu (P)	Cu (T)	Cu (XRF)	Cu (F)	Ni (P)	Ni (T)	Ni (XRF)	Ni (F)	Co (P)	Co (T)	SG	
D		2.268		3.241	0.413				1122	1178			2103	2288			104	107		
D		2.192		3.173	0.407				1150	1148			2141	2236			102	109		
D		2.274		3.320	0.420				1145	1156			2127	2186			105	107		
D		2.260		3.247	0.417				1169	1152			2178	2170			107	110		
D		2.328		3.320	0.423				1154	1154			2121	2200			105	109		
D		2.316		3.313	0.426				1124	1144			2131	2192			102	101		
D		2.231		3.192	0.406				1116	1128			2069	2114			104	106		
D		2.328		3.328	0.424				1127	1146			2085	2206			103	110		
E		2.250		3.160	0.433	0.108			1100	1070			2020	2130			101	109		
E		2.250		3.170	0.416	0.106			1100	1090			2000	2180			101	110		
E		2.300		3.220	0.423	0.094			1090	1130			2010	2240			101	112		
E		2.330		3.270	0.429	0.098			1110	1170			2020	2350			101	119		
E		2.210		3.130	0.425	0.117			1090	1120			2000	2230			101	113		
E		2.250		3.140	0.430	0.110			1110	1120			2010	2230			102	112		
E		2.300		3.250	0.435	0.095			1100	1150			2000	2280			100	116		
E		2.150		3.000	0.402	0.110			1090	1070			1990	2150			101	109		
F	2.480	2.350	3.470	3.400	0.420	0.212	0.267	1410	1150	1180	1170	1220	1830	2080	2160	2200	98	112	3.40	
F	2.490	2.310	3.390	3.450	0.426	0.203	0.277	1400	1160	1160	1180	1180	1830	2100	2160	2200	98	116	2.94	
F	2.420	2.370	3.320	3.430	0.426	0.207	0.271	1390	1150	1140	1160	1180	1830	2060	2150	2200	98	114	2.92	
F	2.600	2.380	3.620	3.440	0.436	0.220	0.287	1390	1150	1180	1200	1160	1840	2040	2220	2100	98	110	2.87	
F	2.490	2.400	3.450	3.410	0.446	0.221	0.272	1390	1170	1150	1180	1180	1860	2030	2210	2100	98	110	2.89	
F	2.530	2.430	3.480	3.400	0.446	0.213	0.281	1380	1160	1160	1180	1240	1850	2030	2170	2150	98	110	2.92	
F	2.480	2.330	3.450	3.410	0.436	0.205	0.267	1400	1140	1150	1180	1160	1810	2030	2160	2100	96	110	2.92	
F	2.430	2.430	3.510	3.420	0.442	0.209	0.291	1380	1150	1160	1150	1180	1830	2040	2160	2250	98	110	2.95	
G		2.360		3.180	0.431			1340	1175	1160	1190		1940	1965	1980		94	104	2.93	
G		2.350		3.160	0.421			1345	1180	1170	1200		1940	1965	1970		96	102	2.93	
G		2.470		3.290	0.444			1340	1190	1125	1190		1975	1925	1960		96	102	2.87	
G		2.470		3.310	0.430			1320	1185	1195	1190		1980	2040	1960		96	110	2.91	
G		2.390		3.210	0.435			1345	1175	1175	1190		1950	1980	1960		95	104	2.98	
G		2.390		3.200	0.434			1320	1175	1285	1180		1950	2170	1940		95	115	2.89	
G		2.370		3.200	0.429			1325	1155	1185	1130		1915	1985	1950		94	104	2.90	
G		2.400		3.230	0.425			1330	1200	1255	1190		2010	2110	2000		97	110	2.97	
H	2.160	2.171	3.240	3.109	0.396	0.210	0.180	1338	1116	1206	1166		1933	2146	2064		107	127		
H	2.140	2.154	3.300	3.125	0.412	0.190	0.180	1329	1113	1124	1150		1934	2076	2065		105	118		
H	2.150	2.229	3.320	3.195	0.403	0.190	0.200	1349	1143	1131	1167		1989	2018	2079		110	118		
H	2.180	2.205	3.300	3.157	0.411	0.210	0.190	1331	1148	1128	1160		1979	2018	2045		110	117		
H	2.230	2.158	3.300	3.169	0.407	0.210	0.170	1346	1091	1132	1159		1901	2022	2053		103	118		
H	2.200	2.217	3.280	3.152	0.414	0.200	0.180	1350	1099	1126	1166		1907	2018	2063		104	117		
H	2.290	2.193	3.190	3.141	0.405	0.200	0.190	1350	1155	1122	1170		2005	2098	2092		110	117		
H	2.360	2.217	3.320	3.151	0.417	0.220	0.210	1341	1091	1134	1148		1897	2122	2066		104	119		
I	2.390	2.260	3.400	3.170	0.425	0.209	0.199	1430	1058		1140		1811		2010		105			
I	2.370	2.170	3.400	3.120	0.423	0.205	0.196	1440	1071		1120		1838		2010		107			
I	2.380	2.250	3.360	3.230	0.661	0.205	0.196	1430	1082		1120		1843		2020		106			
I	2.390	2.170	3.380	3.150	0.411	0.206	0.191	1430	1082		1120		1837		2030		105			
I	2.380	2.100	3.230	3.010	0.392	0.204	0.197	1430	1060		1100		1792		1970		103			
I	2.360	2.210	3.370	3.130	0.440	0.205	0.198	1430	1064		1130		1812		2010		104			
I	2.360	2.200	3.420	3.160	0.408	0.210	0.199	1430	1081		1130		1833		2020		107			
I	2.360	2.200	3.410	3.170	0.421	0.210	0.203	1430	1083		1130		1843		2040		106			
J		2.230		3.200	0.460	0.210		1600	1120	1080	1190		1730	1880	2200		97	105	3.10	
J		2.200		3.220	0.460	0.210		1400	1150	1100	1120		1740	1880	2100		97	107	3.11	
J		2.200		3.200	0.460	0.210		1500	1120	1220	1090		1770	2040	2200		99	117	3.05	
J		2.280		3.260	0.480	0.200		1500	1120	1090	1040		1770	1900	2300		98	108	3.15	
J		2.230		3.210	0.450	0.210		1500	1120	1130	1190		1740	1880	2100		92	107	3.04	
J		2.270		3.210	0.450	0.210		1400	1120	1140	1160		1770	1980	2300		96	110	3.08	
J		2.250		3.200	0.440	0.200		1300	1170	1080	1130		1820	1870	2200		102	107	3.05	
J		2.220		3.220	0.420	0.210		1400	1130	1080	1120		1730	1850	2200		94	106	3.09	
K	2.206		3.005			0.195	0.207						1260				3396			
K	2.378		3.312			0.211	0.204						1304				3039			
K	2.426		3.349			0.214	0.201						1355				3351			
K	2.309		3.151			0.203	0.209						1246				3382			
K	2.235		3.114			0.202	0.199						1443				3417			
K	2.490		3.354			0.212	0.209						1320				3317			
K	2.371		3.298			0.215	0.188						1228				3648			
K	2.290		3.154			0.208	0.195						1324				3053			
L	2.342	2.109	3.308	3.134	0.418	0.213	0.199		1137	1273			1207	1933	2238		2146	99	126	3.17
L	2.314	2.168	3.316	3.201	0.410	0.213	0.199		1114	1260			1230	1920	2214		2159	98	123	3.16
L	2.297	2.102	3.250	3.179	0.413	0.211	0.202		1125	1287			1223	1945	2253		2142	98	125	3.16
L	2.391	2.150	3.420	3.208	0.399	0.218	0.206		1147	1280			1227	1960	2246		2158	100	126	3.20
L	2.371	2.009	3.171	3.156	0.408	0.214	0.201		1113	1284			1222	1916	2256		2169	99	126	3.17
L	2.359	2.081	3.372	3.137	0.413	0.218	0.203		1119	1286			1237	1933	2255		2229	99	126	3.17
L	2.285	2.021	3.268	3.172	0.409	0.208	0.197		1117	1162			1201	1886	2066		2096	97	116	3.21
L	2.375	2.103	3.367	3.220	0.416	0.217	0.203		1110	1139			1210	1914	2047		2102	99	122	3.26

Lab Code	Pt (NIS)	Pt (Pb)	Pd (NIS)	Pd (Pb)	Au (Pb)	Rh	Ru (NIS)	Cr (XRF)	Cu (P)	Cu (T)	Cu (XRF)	Cu (F)	Ni (P)	Ni (T)	Ni (XRF)	Ni (F)	Co (P)	Co (T)	SG
M		2.860		4.030	0.560				1280	1205		1170	2160	2080		2100	105	111	
M		2.650		3.730	0.525				1265	1255		1190	2120	2140		2170	103	114	
M		2.710		3.770	0.526				1280	1205		1140	2130	2070		2180	102	113	
M		2.680		3.810	0.533				1270	1235		1150	2120	2100		2200	104	114	
M		2.170		3.110	0.444				1275	1210		1130	2130	2060		2330	102	112	
M		2.160		3.130	0.431				1355	1220		1150	2280	2090		2090	113	112	
M		2.470		3.540	0.503				1270	1220		1180	2120	2080		2150	103	115	
M		2.310		3.320	0.473				1270	1265		1160	2150	2160		2180	107	117	
N		2.280		3.050		0.200						1190				2158			
N		2.340		3.230		0.200						1143				2071			
N		2.220		3.290		0.220						1191				2161			
N		2.020		2.980		0.190													
N		2.180		3.170		0.200						1183				2154			
N		2.310		3.360		0.220						1186				2158			
N		2.110		3.070		0.210						1194				2160			
N		2.000		3.070		0.210						1186				2155			
O	2.440	2.130	3.440	2.840	0.412	0.221	0.201	1320	1090	1020	1160	1050	1910	1900	2180	2050	102	107	
O	2.380	2.290	3.390	3.190	0.444	0.215	0.190	1330	1080	1030	1160	1060	1900	1900	2210	2060	102	108	
O	2.210	2.310	3.140	3.200	0.446	0.202	0.166	1340	1080	1020	1160	1050	1890	1900	2180	2090	102	108	
O	2.330	2.250	3.380	3.130	0.436	0.216	0.195	1330	1080	1040	1140	1060	1890	1920	2180	2070	102	108	
O	2.130	2.120	3.020	2.870	0.397	0.192	0.176	1340	1080	1030	1190	1060	1890	1900	2210	2070	101	108	
O	2.470	2.280	3.500	3.150	0.443	0.222	0.205	1330	1090	1030	1170	1070	1890	1910	2170	2070	101	108	
O	2.430	2.170	3.440	3.040	0.423	0.221	0.200	1330	1090	1030	1170	1060	1910	1900	2210	2040	103	109	
O	2.270	2.280	3.250	3.140	0.448	0.206	0.186	1330	1080	1020	1170	1070	1890	1900	2180	2090	101	107	
P	2.680		3.470			0.215	0.246	1320	1120	1130	1160	1200	1890	2070	2040	2150	100	112	2.98
P	2.670		3.470			0.216	0.243	1320	1080	1100	1110	1230	1860	2050	2040	2210	98	109	2.99
P	2.670		3.540			0.218	0.250	1310	1100	1110	1080	1210	1860	2080	2040	2230	98	108	2.99
P	2.710		3.560			0.219	0.252	1320	1080	1100	1080	1180	1870	2040	2030	2180	99	108	2.99
P	2.690		3.490			0.218	0.246	1320	1120	1100	1110	1180	1860	2070	2080	2190	101	110	2.98
P	2.650		3.460			0.215	0.242	1320	1130	1140	1070	1200	1920	2120	2040	2210	102	110	3.00
P	2.700		3.560			0.219	0.252	1330	1120	1120	1080	1200	1890	2110	2060	2140	100	112	2.97
P	2.690		3.460			0.217	0.244	1320	1090	1100	1080	1170	1820	2060	2050	2140	98	109	2.98
Q	2.140	2.260	3.080	3.220	0.400	0.190	0.190	1111			1116	1200				2398	2300		2.97
Q	2.070	2.260	3.030	3.220	0.410	0.190	0.180	1114			1159	1200				2436	2300		2.99
Q	2.090	2.200	3.030	3.180	0.400	0.200	0.200	1122			1124	1200				2370	2300		2.98
Q	2.040	2.230	3.100	3.200	0.400	0.190	0.170	1115			1157	1200				2399	2300		2.99
Q	2.080	2.210	3.040	3.190	0.390	0.200	0.200	1104			1104	1200				2459	2400		3.00
Q	2.110	2.110	3.050	3.080	0.370	0.200	0.200	1112			1127	1200				2398	2300		3.02
Q	2.180	2.210	3.170	3.190	0.400	0.200	0.200	1138			1198	1200				2398	2300		2.99
Q	2.210	2.220	3.220	3.200	0.390	0.210	0.200	1121			1226	1200				2433	2400		3.01
R														2110				120	
R														2230				130	
R														1920				110	
R														2280				130	
R														1970				110	
R														1990				110	
R														2030				120	
R														2200				130	
S	2.320	2.300	3.280	3.290	0.380	0.180	0.210	1381		1100	1081	1100	1810	2100	2168		90	97	3.13
S	2.320	2.340	3.340	3.370	0.410	0.180	0.210	1411		1100	1074	1100	1810	2200	2156		90	100	3.12
S	2.330	2.320	3.340	3.330	0.400	0.180	0.210	1366		1100	1083	1100	1810	2200	2173		90	92	3.12
S	2.270	2.270	3.310	3.290	0.390	0.180	0.210	1382		1100	1079	1200	1770	2200	2160		90	98	3.10
S	2.290	2.290	3.240	3.300	0.420	0.180	0.210	1379		1100	1080	1100	1790	2200	2165		90	97	3.11
S	2.340	2.340	3.280	3.360	0.410	0.190	0.210	1379		1100	1077	1100	1830	2200	2156		100	100	3.11
S	2.320	2.240	3.250	3.220	0.390	0.180	0.210	1378		1100	1082	1100	1800	2100	2171		90	98	3.11
S	2.260	2.330	3.170	3.410	0.420	0.180	0.210	1341		1100	1074	1100	1820	2100	2152		90	98	3.10
T	2.404		3.316			0.218	0.206					1204				2804			3.03
T	2.335		3.295			0.222	0.210					1219				2847			3.01
T	2.336		3.330			0.219	0.198					1206				2975			3.04
T	2.325		3.273			0.210	0.200					1215				3311			3.03
T	2.336		3.329			0.217	0.200					1233				3010			3.03
T	2.371		3.433			0.208	0.206					1192				2744			3.03
T	2.392		3.384			0.193	0.199					1216				3050			3.01
T	2.371		3.310			0.202	0.198					1294				2880			3.04
U		2.160		3.180	0.420			1429				1304				2030			3.16
U		2.200		3.150	0.410			1425				1288				2000			3.16
U		2.190		3.120	0.420			1467				1332				2080			3.13
U		2.160		3.160	0.420			1474				1342				2090			3.14
U		2.220		3.210	0.430			1435				1301				2020			3.15
U		2.220		3.180	0.420			1425				1256				2010			3.15
U		2.210		3.200	0.420			1451				1320				2050			3.15
U		2.190		3.160	0.410			1476				1307				2030			3.16

Participating Laboratories: (Not in the same order as in the table of assays)

1. ACME Analytical Laboratories Ltd. (Canada).
2. Actlabs (Canada).
3. ALS Chemex (Canada).
4. ALS Chemex South Africa (Pty) Ltd.
5. Ammtec Ltd (Australia).
6. Anglo Research, Crown Campus. (ex AARL, South Africa).
7. Anglo Platinum EBRL (South Africa).
8. Anglo Platinum RPM Union (South Africa).
9. Assayers Canada.
10. Barplats (South Africa).
11. Becquerel Laboratories Inc. (Canada).
12. Genalysis Laboratory Services (Pty) Ltd. (Australia).
13. Geoscience Laboratories (Geo Labs, Canada).
14. Geological Survey of Finland (GTK) Geoservices, Assay Laboratory.
15. Mintek (South Africa).
16. Set Point Laboratories (Pty) Ltd (South Africa).
17. SGS Lakefield Research Africa (Pty) Ltd. (South Africa).
18. SGS Welshpool Minerals (Australia).
19. SGS Lakefield Research (Canada).
20. TSL Laboratories (Canada).
21. Ultra Trace (Pty) Ltd. (Australia).

Availability: This product is available in Laboratory Packs containing 1kg of material and Explorer Packs containing custom weights (from 50g 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.

8 September 2006

Certifying Officers:



African Mineral Standards: _____

Mike McWha
BSc (Hons), FGSSA, MAusIMM, Pr.Sci.Nat



Geochemist: _____

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