African Mineral Standards

REFERENCE MATERIAL FOR AFRICAN ORES

Synthetic Gold Standard Reference Material

AMIS0016

Certificate of Analysis

Certified Concentration and two "Between Laboratory" Standard Deviations

Gold: 1.41 ± 0.10 g/t

Specific Gravity: 2.72 ± 0.17 g/cc.

Tel:+ 27(0)11 923 7020 **Fax:**+27(0)11 923 7029
E-mail: info@amis.co.za **Web:**www.amis.co.za 30 Electron Avenue, Isando, 1600, PO Box 856, Isando, 1600, South Africa
A division of Set Point Industrial Technology (Pty) Ltd. Reg. No 1989/000201/07, www.setpoint.co.za
Directors: E.G. Gregor (CEO), G.J. Horsfield, L.M.R. Crawford, N.D. Kennelly, Dr. C.J. Rademeyer, M.F. Saunders, M.J. Smith, M.H. Snelling, H. Swanepoel, B. van Heerden, J. Vassiloudis, D. Williams

SET POINT TECHNOLOGY

Intended use: AMIS0016 is suitable for monitoring the accuracy of a single analysis of gold ores hosted by siliceous 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 from barren coarse river sand with gold added as a gold chloride solution.

Approximate mineral and chemical composition: The major gangue mineral is quartz.

Chemical composition is as follows.

SiO_2 %	AL_2O_3 %	K_2O %	Na_2O %	Fe_2O_3 %	LOI %	MgO %
73.5	12.8	4.1	3.7	2.3	1.0	0.9
CaO %	MnO %	TiO_2 %	Cr_2O_3 %	P_2O_5 %	S %	
0.86	0.21	0.15	0.06	0.02	0.01	

Appearance: The material is a very fine powder coloured Yellowish Grey - Munsell 5Y 8/1, to Light Grey - Corstor 5Y 7/1).

Method of preparation: The material was crushed, dry-milled and air-classified to 100% <54um. Wet sieve particle size analysis of random samples confirmed the material was 100% <54um. It was then blended in a bi-conical mixer, systematically divided and then sealed into 1kg Laboratory Packs. Samples were randomly selected for homogeneity testing and third party analysis. Statistical analysis for the consensus test results were carried out by an independent statistician. Explorer Packs are subdivided from the Laboratory packs as required.

Methods of analysis requested:

1. Au. Pb collection with Ag as a co-collector.
2. SG (gas pycnometer)

Method of certification: Nineteen laboratories were each given eight randomly selected packages of sample. The results from sixteen of those laboratories that issued results timeously were used. Results were as set out below:

Lab Code	Gold ppm	SG g/cc
A	1.454	
A	1.444	
A	1.273	
A	1.334	
A	1.387	
A	1.279	
A	1.391	
A	1.314	
B	1.450	
B	1.410	
B	1.370	
B	1.460	
B	1.440	
B	1.350	
B	1.420	
B	1.310	
C	1.360	2.660
C	1.300	2.660
C	1.330	2.650
C	1.360	2.650
C	1.330	2.650
C	1.400	2.650
C	1.420	2.640
C	1.410	2.490
D	1.415	
D	1.360	
D	1.390	
D	1.360	
D	1.375	
D	1.335	
D	1.410	
D	1.275	
E	1.450	2.750
E	1.470	2.740
E	1.370	2.740
E	1.470	2.740
E	1.340	2.740
E	1.450	2.740
E	1.390	2.750
E	1.400	2.740
F	1.360	
F	1.400	
F	1.480	
F	1.440	
F	1.400	
F	1.440	
F	1.440	
F	1.360	
G	1.380	2.810
G	1.390	2.840
G	1.390	2.880
G	1.410	2.880
G	1.390	2.880
G	1.400	2.970
G	1.420	2.910
G	1.430	2.920
H	1.480	
H	1.460	
H	1.450	
H	1.450	
H	1.410	
H	1.420	
H	1.390	
H	1.350	

Lab Code	Gold ppm	SG g/cc
I	1.340	2.710
I	1.240	2.710
I	1.330	2.720
I	1.410	2.710
I	1.350	2.720
I	1.270	2.720
I	1.210	2.710
I	1.400	2.710
J	1.470	
J	1.460	
J	1.530	
J	1.230	
J	1.230	
J	1.440	
J	1.490	
J	1.510	
K	1.370	2.680
K	1.380	2.680
K	1.300	2.670
K	1.370	2.670
K	1.360	2.690
K	1.390	2.660
K	1.360	2.680
K	1.350	2.680
L	1.440	2.680
L	1.470	2.760
L	1.480	2.750
L	1.470	2.770
L	1.510	2.700
L	1.500	2.740
L	1.460	2.720
L	1.480	2.720
M	1.265	2.530
M	1.400	2.600
M	1.385	2.610
M	1.415	2.600
M	1.445	2.610
M	1.385	2.570
M	1.345	2.710
M	1.370	2.590
N	1.460	2.810
N	1.460	2.830
N	1.450	2.850
N	1.470	2.850
N	1.470	2.860
N	1.460	2.830
N	1.460	2.830
N	1.480	2.820
O	1.444	
O	1.461	
O	1.406	
O	1.385	
O	1.442	
O	1.399	
O	1.377	
O	1.482	
P	1.450	
P	1.430	
P	1.390	
P	1.500	
P	1.380	
P	1.440	
P	1.430	
P	1.440	

The mean and standard deviation for all data was calculated. Outliers were defined as samples beyond the mean ± 2 Standard Deviations from all data. These outliers were removed from the data (italicized) 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: (Not in same order as in the table of assays)

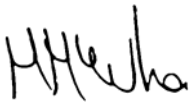
1. ACME Analytical Laboratories Ltd. (Canada).
2. Alex Stewart Tes Bretby (South Africa).
3. Ammtec Limited (Australia).
4. Anglo American Research Laboratories (Pty) Ltd. (South Africa).
5. Assayers Canada.
6. ALS Chemex South Africa (Pty) Ltd.
7. ALS Chemex Labs Ltd. (Canada).
8. Genalysis Laboratory Services (Pty) Ltd. (Australia).
9. Mintek Analytical Services (South Africa).
10. Navachab Gold Mine Assay Laboratory (Anglogold Ashanti, Namibia).
11. Performance Laboratories (South Africa).
12. Set Point Laboratories (Pty) Ltd. (South Africa).
13. SGS Lakefield Research Africa (Johannesburg, South Africa).
14. SGS Lakefield Research Africa – (Barberton, South Africa).
15. SGS Welshpool Minerals – (Australia)
16. Ultra Trace (Pty) Ltd - (Australia).

Availability: This product is available in Laboratory Packs containing 1kg of material or in Explorer Packs containing client specified weights of material up to 250g. Laboratory Packs are sealed bottles delivered in sealed foil pouches. Explorer Packs contain material in standard geochem envelopes placed into foil pouches that are nitrogen flushed and vacuum sealed.

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.

31 May 2006

Certifying officers:



African Mineral Standards:_____

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

Geochemist:_____

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