



African Mineral Standards

MATRIX REFERENCE MATERIALS

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AMIS0305

Blank Chips

Certificate of Analysis

Informational Values

Major Elements

Sample	Units	Method	mean	Stdev	RSD%
Al ₂ O ₃	%	XRF	1.2	0.07	5.59
CaO	%	XRF	<.1		
Cr ₂ O ₃	%	XRF	0.009	0.003	36.5
Fe ₂ O ₃	%	XRF	1.36	0.31	22.7
K ₂ O	%	XRF	0.27	0.02	5.92
MgO	%	XRF	0.04	0.01	14.7
MnO	%	XRF	<.1		
Na ₂ O	%	XRF	0.02	0.001	23.2
P ₂ O ₅	%	XRF	0.01	0.002	17.4
SiO ₂	%	XRF	96.7	0.3	0.3
TiO ₂	%	XRF	0.07	0.01	10.5

Trace Elements

Sample	Units	Method	mean	Stdev	RSD%
Ag	ppm	ICP	<1		
Al	%	ICP	0.6	0.0	5.5
As	ppm	ICP	<2		
Au	ppb	FA	<5		
B	ppm	ICP	<20		
Ba	ppm	ICP	39	3.4	8.8
Be	ppm	ICP	0.2	0.02	8.8
Bi	ppm	ICP	<0.1		
Ca	%	ICP	<0.01		
Cd	ppm	ICP	<0.5		
Ce	ppm	ICP	8	1	13.5
Co	ppm	ICP	<5		
Cr	ppm	ICP	<100		
Cs	ppm	ICP	0.2	0.05	20.7
Cu	ppm	ICP	10	4	35.2
Dy	ppm	ICP	0.5	0.04	9.0
Er	ppm	ICP	0.3	0.04	12.2
Eu	ppm	ICP	0.1	0.01	14.0
Fe	%	ICP	0.97	0.22	22.4
Ga	ppm	ICP	1.5	0.2	11.0
Gd	ppm	ICP	1	0.1	14.9
Ge	ppm	ICP	<20		
Hf	ppm	ICP	2	0.1	9.4
Ho	ppm	ICP	0.1	0.01	12.1
In	ppm	ICP	<0.02		
K	%	ICP	0.2	0.02	7.0
La	ppm	ICP	4	0.4	9.5
Li	ppm	ICP	14.2	0.8	5.6
Lu	ppm	ICP	<0.1		
Mg	%	ICP	0.02	0.00	12.5
Mn	ppm	ICP	<100		
Mo	ppm	ICP	<5		

Sample	Units	Method	mean	Stdev	RSD%
Na	%	ICP	<0.1		
Nb	ppm	ICP	<1		
Nd	ppm	ICP	3	0.3	9.4
Ni	ppm	ICP	6	2	28.0
P	ppm	ICP	<100		
Pb	ppm	ICP	3	2	70.4
Pd	ppb	FA	<5		
Pr	ppm	ICP	1	0.1	7.8
Pt	ppb	FA	<5		
Rb	ppm	ICP	11	1	7.1
Re	ppm	ICP	<0.1		
S	ppm	ICP	<100		
Sb	ppm	ICP	<1		
Sc	ppm	ICP	<1		
Se	ppm	ICP	<5		
Sm	ppm	ICP	1	0.1	8.9
Sn	ppm	ICP	<1		
Sr	ppm	ICP	4	1	28.1
Ta	ppm	ICP	<0.1		
Tb	ppm	ICP	0.1	0.01	14.7
Te	ppm	ICP	<0.2		
Th	ppm	ICP	1	0.1	7.9
Ti	%	ICP	0.04	0.01	11.8
Tl	ppm	ICP	<0.1		
Tm	ppm	ICP	<0.1		
U	ppm	ICP	0.5	0.06	13.7
V	ppm	ICP	13	3	25.4
W	ppm	ICP	<5		
Y	ppm	ICP	3	0.2	7.9
Yb	ppm	ICP	0.3	0.04	11.8
Zn	ppm	ICP	8.12	2.91	35.9
Zr	ppm	ICP	50	6	11.1

1. **Intended Use:** AMIS0305 is a coarse blank material suitable to test assay laboratory sample preparation and quality control procedures. The material should be routinely inserted within batches of samples to test for contamination or sample mixing in the sample preparation or assay process.
2. **Origin of Material:** This standard was made from silica chips.
3. **Appearance:** The material comprises chips of white quartzite.
4. **Handling instructions:** The material is packaged in Laboratory Packs that must be kept sealed and then shaken or otherwise agitated before use.
5. **Method of Preparation:** The material was crushed to approximately 13mm and split into 25kg lots. Three samples were taken from each lot, combined, mixed, re-crushed, split into 30 samples and milled. These samples were sent for homogeneity testing to an independent

commercial laboratory for third party analysis. Statistical analysis for the test results were then carried out.

6. Methods of Analysis requested:

30 QC samples were analysed by an independent commercial laboratory. Three methods were used.

1. Samples were analysed by firing a 40 gm (approx) portion of the sample. Au, Pt and Pd were determined by ICP OES.
2. Samples were digested and refluxed with a mixture of Acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric Acids. Cu, Zn, Co, Ni, Mn, P, Sc, V, Al, Ca, Na, K, S were then determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry. As, Ag, Ba, Be, Bi, Cd, Ga, Li, Mo, Pb, Sb, Sn, Sr, W, Ta, Y, Hf, Nb, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, Se, Rb, In, Te, Cs, Re, Tl were determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.
3. Samples were fused with Sodium Peroxide and subsequently the melt was dissolved in dilute Hydrochloric acid for analysis. B, Cr, Si, Fe, Mg, Ti were determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry. Ge, Zr were determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.

7. Method of Certification: This material has been carefully prepared and tested but has not been submitted to a full inter-laboratory round robin.

8. Period of validity: The certified values are valid for this product, while still sealed in its original packaging, until notification to the contrary. The stability of the material will be subject to continuous testing for the duration of the inventory. Should product stability become an issue, all customers will be notified and notification to that effect will be placed on the www.amis.co.za website.

9. Availability: This product is available in Laboratory Packs containing 1.5 kg of material. The Laboratory Packs are sealed bottles delivered in sealed foil pouches.

10. 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.

18 November 2011

Certifying Officers:



African Mineral Standards: _____

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



Geochemist: _____

Barry W. Smee
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