



African Mineral Standards

MATRIX REFERENCE MATERIALS

AMIS0415

Blank Silica Pulp

Certificate of Analysis

Informational Values

Major Elements

Sample	Units	Method	Mean	Stdev	RSD%
Al ₂ O ₃	%	XRF	0.40	0.01	0.01
CaO	%	XRF	<1		
Cr ₂ O ₃	%	XRF	0.001	0.0003	0.29
Fe ₂ O ₃	%	XRF	0.03	0.0041	0.15
K ₂ O	%	XRF	0.14	0.0011	0.01
MgO	%	XRF	0.03	0.004	0.16
MnO	%	XRF	<1		
Na ₂ O	%	XRF	0.012	0.004	0.33
P ₂ O ₅	%	XRF	0.005	0.0003	0.06
SiO ₂	%	XRF	99.25	0.13	0.001
TiO ₂	%	XRF	0.02	0	0

Trace Elements

Sample	Units	Method	Mean	Stdev	RSD%
Ag	ppm	ICP	<0.5		
Al	%	ICP	0.22	0.01	0.03
As	ppm	ICP	<1		
Au	ppb	FA	<1		
B	ppm	ICP	<1		
Ba	ppm	ICP	14.77	0.50	0.03
Be	ppm	ICP	<0.1		
Bi	ppm	ICP	<0.1		
Ca	%	ICP	<0.01		
Cd	ppm	ICP	<0.5		
Ce	ppm	ICP	6.01	0.17	0.03
Co	ppm	ICP	<5		
Cr	ppm	ICP	<50		
Cs	ppm	ICP	0.24	0	0
Cu	ppm	ICP	<5		
Dy	ppm	ICP	0.35	0.03	0.09
Er	ppm	ICP	0.21	0.03	0.12
Eu	ppm	ICP	<0.05		
Fe	%	ICP	0.02	0.003	0.16
Ga	ppm	ICP	0.39	0.04	0.09
Gd	ppm	ICP	0.40	0	0
Ge	ppm	ICP	<20		
Hf	ppm	ICP	0.63	0.07	0.11
Ho	ppm	ICP	0.07	0.01	0.15
In	ppm	ICP	<0.02		
K	%	ICP	0.12	0.01	0.04
La	ppm	ICP	3.33	0.12	0.04
Li	ppm	ICP	0.50	0	0
Lu	ppm	ICP	0.04	0	0
Mg	%	ICP	0.02	0.004	0.21
Mn	ppm	ICP	14.40	1.33	0.09
Mo	ppm	ICP	<0.5		

Sample	Units	Method	Mean	Stdev	RSD%
Na	%	ICP	<0.01		
Nb	ppm	ICP	0.52	0.09	0.18
Nd	ppm	ICP	2.46	0.12	0.05
Ni	ppm	ICP	0.33	5.07	15.22
P	ppm	ICP	<50		
Pb	ppm	ICP	1.00	0	0
Pd	ppb	FA	<20		
Pr	ppm	ICP	0.72	0.03	0.04
Pt	ppb	FA	<20		
Rb	ppm	ICP	5.71	0.19	0.03
Re	ppm	ICP	<0.1		
S	ppm	ICP	50.00	0	0
Sb	ppm	ICP	<0.2		
Sc	ppm	ICP	<1		
Se	ppm	ICP	<5		
Sm	ppm	ICP	0.42	0.04	0.09
Sn	ppm	ICP	<1		
Sr	ppm	ICP	2.27	0.25	0.11
Ta	ppm	ICP	<0.1		
Tb	ppm	ICP	0.06	0.01	0.11
Te	ppm	ICP	<0.2		
Th	ppm	ICP	1.70	0.13	0.07
Ti	%	ICP	0.02	0.004	0.24
Tl	ppm	ICP	<0.1		
Tm	ppm	ICP	0.04	0	0
U	ppm	ICP	0.57	0.04	0.08
V	ppm	ICP	<5		
W	ppm	ICP	<0.5		
Y	ppm	ICP	1.59	0.06	0.04
Yb	ppm	ICP	0.25	0.03	0.11
Zn	ppm	ICP	<5		
Zr	ppm	ICP	20.20	1.42	0.07

- Intended Use:** AMISO415 is a blank pulp material suitable to test assay laboratory sample 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.
- Origin of Material:** This standard was made from silica sand.
- Appearance:** The material comprises a fine white powder (Corstor 8N).
- Handling instructions:** The material is packaged in Laboratory Packs that must be kept sealed and then shaken or otherwise agitated before use.
- Method of Preparation:** The material was crushed, dry-milled and air-classified to 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.

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. The samples have been cast using a 12:22 flux to form a glass bead which has been analysed by XRF. Al_2O_3 , CaO , Cr_2O_3 , Fe_2O_3 , K_2O , MgO , MnO , Na_2O , P_2O_5 , SiO_2 , TiO_2 were determined by X-Ray Fluorescence Spectrometry
3. 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.
4. 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.

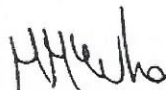
8. Period of validity: The certified values are valid for this product, while still sealed in its original packaging, until notification to the contrary. The stability of the material will be subject to continuous testing for the duration of the inventory. Should product stability become an issue, all 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 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 and Mike McWha accept no liability for any decisions or actions taken following the use of the reference material.

14 October 2013

Certifying Officer:



African Mineral Standards: _____

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