Reference Material Report

AMIS0577

Reference Material

Blank Silica Powder

Reference Material Report

AMIS
(Reg. No. 1989/000201/07)
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SUMMARY STATISTICS

1. Informational concentrations and standard deviation

Table 1. Informational oxide concentrations, standard deviation and relative standard deviation percent.

Analyte	Units	Method	Mean	Stdev	RSD%
Al_2O_3	%	XRF[1]	0.44	0.01	1.28
CaO	%	XRF	0.05	0.001	1.26
Cr_2O_3	%	XRF	0.002	0.001	33.09
Fe_2O_3	%	XRF	0.04	0.001	3.10
K_2O	%	XRF	0.14	0.001	0.75
MgO	%	XRF	0.03	0.002	7.00
MnO	%	XRF	0.002	<0.001	30.01
Na_2O	%	XRF	0.01	0.001	18.63
SiO_2	%	XRF	99.00	0.10	0.10
TiO_2	%	XRF	0.03	0.001	3.16

1. *XRF is X Ray Fluorescence*
2. *4A_MICP is 4A_MICP is a Multi-acid digestion with ICP/MICP/AA finish*

Table 2. Informational elemental concentrations, SD and relative standard deviation percent.

Analyte	Units	Method	Mean	Stdev	RSD%
Ag	ppm	4A_MICP[2]	0.01	0.02	114.81
Al	%	4A_MICP	0.24	0.004	1.84
As	ppm	4A_MICP	0.320	0.130	40.15
Au	ppm	Pb Collection	ND	*	*
Ba	ppm	4A_MICP	11.20	3.32	29.61
Be	ppm	4A_MICP	0.06	0.010	24.51
Bi	ppm	4A_MICP	0.03	0.020	79.00
Ca	%	4A_MICP	0.050	0.00	7.08
Ce	ppm	4A_MICP	7.24	0.27	3.77
Co	ppm	4A_MICP	0.21	0.030	15.64
Cr	ppm	4A_MICP	8.32	0.56	6.69
Cs	ppm	4A_MICP	0.18	0.01	3.71
Cu	ppm	4A_MICP	1.69	0.65	38.44
Fe	%	4A_MICP	0.03	0.003	8.99
Ga	ppm	4A_MICP	0.4	0.01	3.55
Hf	ppm	4A_MICP	0.6	0.03	4.81
K	%	4A_MICP	0.12	0.005	3.91
La	ppm	4A_MICP	3.46	0.14	4.01
Li	ppm	4A_MICP	0.6	0.04	5.81
Mg	%	4A_MICP	0.02	0.004	20.34
Mn	ppm	4A_MICP	10.16	1.03	10.12
Mo	ppm	4A_MICP	0.22	0.01	6.57
Na	%	4A_MICP	0.01	*	*
Nb	ppm	4A_MICP	0.51	0.03	5.45
Ni	ppm	4A_MICP	0.98	0.2	20.34
P	ppm	4A_MICP	11.67	3.81	32.63
*Pb	ppm	4A_MICP	1.13	0.21	18.9
Rb	ppm	4A_MICP	4.54	0.1	2.21
Sb	ppm	4A_MICP	0.11	0.02	15.3
Sc	ppm	4A_MICP	0.48	0.04	7.73
Sr	ppm	4A_MICP	2.34	0.09	3.7
Th	ppm	4A_MICP	1.68	0.06	3.29
Ti	%	4A_MICP	0.01	*	4.03
Tl	ppm	4A_MICP	0.04	*	13.46
U	ppm	4A_MICP	0.5	0.03	5.77
V	ppm	4A_MICP	2.72	0.46	16.85
W	ppm	4A_MICP	0.2	*	*
Y	ppm	4A_MICP	1.4	0.05	3.24
Zr	ppm	4A_MICP	23.54	1.05	4.44

* denotes that the results were too similar and SD and RSD% could not be calculated
ND – Not Detected

2. Intended Use

AMIS0577 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.

3. Analytical and Physical Methods

A complete list of analytical and physical methods as generic method codes with a brief description of the methods is available on the AMIS web site www.amis.co.za

4. Origin of Material

This standard was made from silica sand.

5. Approximate Mineral and Chemical Composition

The material is a silica blank powder which typically contains above 95% SiO_2.

6. Health and Safety

The material is a very fine powder coloured White (Corstor 8N). Safety precautions for handling fine particulate matter are recommended, such as the use of safety glasses, breathing protection, gloves and a laboratory coat.

7. Method of Preparation

The particle size distribution for this material was shown to have a nominal top size of 75 µm. The procedure of preparation in brief is as follows: The material was blended in a bi-conical mixer, systematically divided and sealed into 1kg Laboratory Packs. Explorer Packs are then subdivided from the Laboratory Packs as required. Final packaged units were then selected on a random basis and submitted for analysis to an independent laboratory accredited with the ISO17025:2017 standard of general requirements for the competence of testing and calibration laboratories. The results obtained from this laboratory are then evaluated statistically by AMIS for homogeneity.

8. Handling

The material is packaged in Laboratory Packs and Explorer Packs that must be shaken or otherwise agitated before use.

9. Storage information

The material should be stored in a cool dry place, in such a way that it does not compromise the integrity of the CRM. The material should be stored in conditions which will ensure it does not absorb moisture.

10. Methods of Analysis

1. All major oxides have been determined by X-Ray Fluorescence Spectrometer on oven dry (105 °C) sample.
2. Loss on Ignition has been determined between 105 and 1000 °C. Results are reported on dry sample basis.
3. LOI1000 has been determined gravimetrically.
4. Multi element scan to include all elements-4-acid total digestion including HF and/or peroxide fusion finished with either ICP-OES or ICP-MS or AAS

11. Method of certification

This material has been carefully prepared and tested by a third-party independent ISO17025 accredited laboratory. The material was not submitted for interlaboratory proficiency testing.

12. Metrological Traceability

Traceability to SI units is via the standards used by the individual laboratory that did the analysis which is accredited to the ISO17025:2017 general requirements for the competence of testing and calibration laboratories and who have maintained measurement traceability during the analytical process.

13. Period of Validity

The values quoted are valid for this product, while still sealed in its original packaging, until notification to the contrary.

14. Minimum Sample Size

Most laboratories use a 0.5g sample size for the ICP-OES and a 30g sample size for the fire assay. These are the recommended minimum sample sizes for the use of this material.

15. Recommended use in Quality Control

Users should set their own limits *i.e.* 1, 2 and 3 standard deviations from an obtained mean value based on at least 10 replicate analyses using this RM.

16. Legal Notice

This report and the reference material described in it have been prepared with due care and attention. However, AMIS, Makhosi Khoza accept no liability for any decisions or actions taken following the use of the reference material.

Date of Version v2.00: 24 May 2019

Version v2.00 replaces the original report of AMIS0577

Reason for Version v2.00: Addition of Au Pb Collection

Version: *v2.00*

Date of Version v1.00: 10 May 2019

Version: *v1.00*

Reason for Version v1.00: Addition of all elements

Date of Version 000: 26 April 2018

Version: *000*

Approving Officers:

African Mineral Standards: _____

Makhosi Khoza (Quality Specialist)