

Certificate of Analysis

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MEG-GB1.11.21

Certified Reference Material

MEAN =	4582	ppm Vanadium	
95% Confidence =	3727	- 5448	ppm V

MEAN =	2.70	percent Nickel	
95% Confidence =	2.43	- 2.97	% Ni

MEAN =	1969	ppm Cobalt	
95% Confidence =	1633	- 2306	ppm Co

MEAN =	4.77	percent Zinc	
95% Confidence =	4.39	- 5.15	% Zn

Prepared By: Shea Clark Smith / Minerals Exploration & Environmental Geochemistry

Certified By: Shea Clark Smith, MSc.(Geochemistry)

Manufactured for: MEG LABS

Date of Certification: August 30, 2011

Origin of Reference Material:

Certified Reference Material MEG-GB1.11.21 was created from mineralized rock from the Gibbellini Mine, Eureka County, NV.

This material is matrix-matched to this specific hydrothermally altered black shale.

Method of Preparation:

126 Kg of mine ore was dried at 100C, jaw crushed, and roll crushed to about 30 mesh (595 um).

The batch was comminuted to powder in a ceramic ball mill for 192 hours.

Sizing tests of the final product show greater than 85% pass -200 mesh (-74um).

The standard was packaged in 50 g envelopes, each envelope with a removable sticky-label.

Method of Analysis:

Using the ICPAES capabilities of just one laboratory, homogeneity tests were done to estimate multielement distributions

from a 4-acid digestion (0.5 gram) from each of five samples.

Then, five samples each to eight laboratories were assayed by ICPAES and these data were used to certify the material for vanadium, nickel, cobalt, and zinc concentrations.

Summarized Assay Results:

PROJECT: MEG-GB1.11.21

VANADIUM (parts per million)	PPM
DATA POINTS (ALL DATA)	46
MEAN (ALL DATA)	4588
STANDARD DEVIATION (ALL DATA)	430
% RSD	9.4
RANGE OF VALUES - HIGH	5295
RANGE OF VALUES - LOW	3470
95% CONFIDENCE LIMITS	3727 to 5448

DATA POINTS (LAB AVERAGE DATA)	8
MEAN (LABS)	4582

STANDARD DEVIATION (LABS)	465
CV (% RSD)	10.1
RANGE OF VALUES - HIGH	5023
RANGE OF VALUES - LOW	3519
95% CONFIDENCE LIMITS	3653 to 5512

NICKEL (%)	%
DATA POINTS (ALL DATA)	36
MEAN (ALL DATA)	2.71
STANDARD DEVIATION (ALL DATA)	0.15
% RSD	5.4
RANGE OF VALUES - HIGH	2.99
RANGE OF VALUES - LOW	2.33
95% CONFIDENCE LIMITS	2.41 to 3.00

DATA POINTS (LAB DATA)	7
MEAN (LABS)	2.70
STANDARD DEVIATION (LABS)	0.1
CV (% RSD)	5.00
RANGE OF VALUES - HIGH	2.89
RANGE OF VALUES - LOW	2.44
95% CONFIDENCE LIMITS	2.43 to 2.97

COBALT (PPM)	PPM
DATA POINTS (ALL DATA)	26
MEAN (ALL DATA)	1971
STANDARD DEVIATION (ALL DATA)	160
% RSD	8.1
RANGE OF VALUES - HIGH	2190
RANGE OF VALUES - LOW	1667
95% CONFIDENCE LIMITS	1651 to 2290

DATA POINTS (LAB DATA)	5
MEAN (LABS)	1969
STANDARD DEVIATION (LABS)	168
CV (% RSD)	8.6
RANGE OF VALUES - HIGH	2154
RANGE OF VALUES - LOW	1700
95% CONFIDENCE LIMITS	1633 to 2306

ZINC (%)	%
DATA POINTS (ALL DATA)	41
MEAN (ALL DATA)	4.77
STANDARD DEVIATION (ALL DATA)	0.21
% RSD	4.4
RANGE OF VALUES - HIGH	5.24
RANGE OF VALUES - LOW	4.27
95% CONFIDENCE LIMITS	4.35 to 5.18

DATA POINTS (LAB DATA)	8
MEAN (LABS)	4.77
STANDARD DEVIATION (LABS)	0.19
CV (% RSD)	4.0
RANGE OF VALUES - HIGH	4.96
RANGE OF VALUES - LOW	4.43
95% CONFIDENCE LIMITS	4.39 to 5.15

Statistical Procedures:

Acceptable assay limits are based on the results of 5 samples shipped to each of 8 laboratories.

The samples were submitted with other MEG standards in randomized order, so that as much as possible, real operating conditions were obtained from the participating laboratories. All of the data were used to determine an acceptable range, based on the mean and standard deviation of the "Lab Average Data". The acceptable reporting range is the "95% Confidence Limit", which is the mean +/- 2 standard deviations. Other statistics are provided to help the user assign viable acceptance boundaries.

Standards with an RSD (Relative Standard Deviation) of near or less than 5% are termed "Certified", while RSD's between 5% to 15% are designated "Provisional". RSD's over 15% are "Informational".

Instructions and Recommendations for Use:

Submit the entire contents of one 50 g envelope in random locations in the submittal, approximately every 10-20 samples. Use of blanks (samples with "below detection" concentration of analyte) are also recommended, randomly placed every 30-40 samples. The analytical request should be the same as that used for the round robin assays that generated this certificate.

Intended Use:

The standard material can be used to validate the analysis of samples from vanadium ores with a similar grade. As a control sample in routine assay laboratory operations, it should behave within the limits as indicated statistically in this certification. Its intended use is to monitor inter-laboratory and instrumental bias within these limits.

The recommended concentrations and limits for this material are based on multiple assays from several laboratories and reflect a consensus of the inherent chemical concentration. These values are a first attempt at a chemical characterization to which later data may be added as experience with the material increases.

Slight variations in analytical procedures between laboratories will result in slight biases to the recommended statistical limits.

This standard material is not recommended for method development, nor instrumental calibration.

Handling Instructions:

The material is packaged in manila tin-top envelopes for easy open and close use. The material should be reblended just prior to use in the assay laboratory. This can be done with a micro-riffle splitter or rubber sheeting. Simple agitation and shaking is not sufficient to rehomogenize prior to use.

Normal safety precautions for handling powders are recommended. The use of safety glasses, dust inhalation protection, gloves, and a laboratory coat are suggested.

Safety Notice:

A Material Safety Data Sheet (MSDS) is not required for this material. This material will not release or otherwise result in exposure to a hazardous chemical, under normal conditions of use. Use regular precautions as for any work with fine powder material.

Legal Notice:

This certificate and the referenced material have been prepared with due care and attention. However, Minerals Exploration & Environmental Geochemistry (MEG Labs), and Shea Clark Smith, MSc, P.G., accept no liability for any decisions or actions taken following the use of this geochemical reference material.

Major Constituents as Oxides

Average of 10 samples: 4-acid, ICPMS

Raw Data:	Al%	Ca%	Fe%	K%	Mg%	Na%	S%	Ti%	Si%
ICP/AES Data (n=5)	1.16	1.59	1.54	0.45	0.27	0.52	0.03	0.06	
Conversion Factor	1.8899	1.3992	1.4297	1.2046	1.6579	1.348	2.4953	1.6681	2.1392
	Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	Na ₂ O	SO ₃	TiO ₂	SiO ₂ estimated
% Oxide:	2.19	2.22	2.20	0.54	0.45	0.70	0.07	0.10	91.52

Participating Laboratories:

AMERICAN ASSAY (Sparks, NV)
ACTLABS-ANCASTER
ACME-VANCOUVER
ALS-VANCOUVER
SGS-LAKEFIELD

ECOTECH-BURNABY
INSPECTORATE-SPARKS
INSPECTORATE-VANCOUVER

A handwritten signature in blue ink, appearing to read 'Shea Clark Smith', with a long horizontal stroke extending to the right.

Certified By:

Shea Clark Smith, MSc., P.G.