GEOSTATS PTY LTD

Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Geochem Base Metal Reference Material Product Code

GBM314-5

Certified Control Values

Total Digest

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	24	2	57	+/- 0.6
Copper (ppm)	39	5	66	+/- 1.3
Zinc (ppm)	78	8	62	+/- 2
Lead (ppm)	24	4	59	+/- 1.1
Arsenic (ppm)	5	nr	nr	nr
Cobalt (ppm)	22	2	59	+/- 0.5
Silver (ppm)	3.1	0.2	57	+/- 0.06

Partial Digest

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	12	2	54	+/- 0.5
Copper (ppm)	35	5	74	+/- 1.1
Zinc (ppm)	46	9	64	+/- 2.2
Lead (ppm)	17	4	65	+/- 0.9
Arsenic (ppm)	4	2	35	+/- 0.7
Cobalt (ppm)	11	3	56	+/- 0.7
Silver (ppm)	3.1	0.2	63	+/- 0.06

CRM Details

Control Statistic Details

Control statistics were produced from results accumulated in the April-2014 round robin. The number of results used to certify each analyte is shown in the table above.

Material Description

This material is described as a Mine Ore Low Sulphide.

Colour Designation (ISCC-NBS, SP440)

This material is light olive gray in colour.

Usage

This product is for use in the mining industry as a reference material for monitoring and testing the accuracy of laboratory assaying.

Preparation and Packaging

All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry material is then pulverised to better than 75 micron (nominal mean of 45 micron) using an air classifier. The material is then homogenised and stored in a sealed, stable container ready for final packaging.

Materials are statistically sampled from stores, then packaged into either heat sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready for distribution. All packaging has been chosen to ensure minimal contamination from outside sources during shipment, use and storage.

Assay Testwork

All standards are tested thoroughly in the Geostats bi-annual laboratory survey. This involves assaying by multiple laboratories from around the world. Results are compiled into a comprehensive report detailing statistics for each standard. Assay distributions are checked and processed statistically, producing monitoring statistics for these standards. Materials are tested regularly to ensure stability and homogeneity.

Stability

This product remains stable in its original packaging, away from direct sunlight.

Material Safety

This product is not hazardous and non-toxic.

Neutron Activation Analysis Results (ppm, unless otherwise noted)	
Antimony	<0.1
Arsenic	3
Barium	370
Bromine	0.6
Cadmium	<5
Caesium	2
Calcium (%)	nr
Cerium	36
Chromium	70
Cobalt	23
Europium	<1
Gold (ppb)	780
Hafnium	4
Iridium (ppb)	<50
Iron (%)	5.4
Lanthanum	22
Lutetium	<0.2
Mercury	nr
Molybdenum	19
Neodymium	nr
Nickel	28
Potassium (%)	nr
Rubidium	110
Samarium	4.6
Scandium	15.3
Selenium	<5
Silver	3
Sodium (%)	1.82
Strontium	nr
Tantalum	1.3
Tellurium	nr
Terbium	0.8
Thorium	14.4
Tin	nr
Tungsten	1
Uranium	8.4
Ytterbium	3
Zinc	<100
Zirconium	nr

Major Elements by Fusion / XRF (%)	
Fe	5.95
SiO_2	60.43
Al_2O_3	13.22
TiO_2	1.06
MnO	0.1
CaO	6.49
P	0.065
S	0.048
MgO	2.8
K_2O	2.15
Na_2O	2.84
LOI1000	1.67

Neutron Activation Analyses and Fusion / XRF Analyses are single results and are indicative only. These are provided for matrix identification purposes.

'nr': Not Reported

20 Hines Road, O'Connor, Western Australia 6163
Phone : +61 8 9314 2566, Fax : +61 8 9314 3699
e-mail : pjh@geostats.com.au, srr@geostats.com.au
Website http://www.geostats.com.au

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