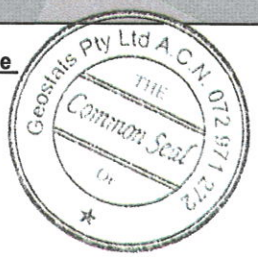
GEOSTATS PTY LTD

Mining Industry Consultants
Reference Material Manufacture and Sales



Certified Ore Grade Base Metal Reference Material Product Code

GBM916-11

Certified Control Values

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	9	6	40	+/- 2
Copper (ppm)	10864	324	251	+/- 40
Zinc (ppm)	60894	2386	211	+/- 325
Lead (ppm)	2843	123	217	+/- 16
Cobalt (ppm)	nr	nr	nr	nr
Silver (ppm)	68.0	4.2	236	+/- 0.54
Sulphur (%)	9.89	0.30	181	+/- 0.04

CRM Details

Control Statistic Details
Control statistics were produced from results accumulated in the October-2016, April-2018 round robins. The number of results used to certify each analyte is shown in the table above.

Material Description
This material is described as a Zn / Cu / Ag Sulphide ex Armenia.

Colour Designation (ISCC-NBS, SP440)
This material is medium 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	64.9
Arsenic	242
Barium	231
Bromine	<2
Cadmium	508.5
Caesium	<1
Calcium (%)	nr
Cerium	<10
Chromium	<10
Cobalt	8
Europium	1.73
Gold (ppb)	3915
Hafnium	<5
Iridium (ppb)	<50
Iron (%)	7
Lanthanum	4.04
Lutetium	0.23
Mercury	nr
Molybdenum	<10
Neodymium	nr
Nickel	<20
Potassium (%)	nr
Rubidium	21
Samarium	1.55
Scandium	10.8
Selenium	11
Silver	62
Sodium (%)	0.434
Strontium	nr
Tantalum	<2
Tellurium	53.8
Terbium	<1
Thorium	<0.5
Tin	<200
Tungsten	<5
Uranium	1
Ytterbium	1.2
Zinc	61750
Zirconium	<500

Major Elements by Fusion / XRF (%)	
Fe	6.923
SiO_2	54.55
Al_2O_3	7.79
TiO_2	0.17
MnO	0.3
CaO	3.77
P	0.014
S	9.74
MgO	1.44
K_2O	1.2
Na_2O	0.39
LOI1000	6.38

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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