

GEOSTATS PTY LTD

Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Geochem Base Metal Reference Material Product Code

GBM319-4



Certified Control Values

Total Digest

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	17	2	57	+/- 0.5
Copper (ppm)	1756	76	71	+/- 18.1
Zinc (ppm)	1791	65	65	+/- 16.3
Lead (ppm)	505	35	65	+/- 8.7
Arsenic (ppm)	390	26	56	+/- 7.1
Cobalt (ppm)	95	7	63	+/- 1.9
Silver (ppm)	3.3	0.4	61	+/- 0.09

Partial Digest

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	10	1	51	+/- 0.3
Copper (ppm)	1765	75	79	+/- 16.9
Zinc (ppm)	1808	91	67	+/- 22.5
Lead (ppm)	502	31	65	+/- 7.7
Arsenic (ppm)	389	27	62	+/- 6.8
Cobalt (ppm)	91	9	62	+/- 2.3
Silver (ppm)	3.2	0.2	61	+/- 0.06

CRM Details

<u>Control Statistic Details</u> Control statistics were produced from results accumulated in the April-2019 round robin. The number of results used to certify each analyte is shown in the table above.	<u>Neutron Activation Analysis Results (ppm, unless otherwise noted)</u>		<u>Major Elements by Fusion / XRF (%)</u>	
	<u>Material Description</u> This material is described as a Cut-off copper ore.	Antimony	0.5	Fe
<u>Colour Designation (ISCC-NBS, SP440)</u> This material is light gray in colour.	Arsenic	383	SiO ₂	67.4
<u>Usage</u> This product is for use in the mining industry as a reference material for monitoring and testing the accuracy of laboratory assaying.	Barium	446	Al ₂ O ₃	13.45
<u>Preparation and Packaging</u> 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.	Bromine	<2	TiO ₂	0.63
<u>Assay Testwork</u> 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.	Cadmium	<10	MnO	0.07
<u>Stability</u> This product remains stable in its original packaging, away from direct sunlight.	Caesium	2	CaO	3.52
<u>Material Safety</u> This product is not hazardous and non-toxic.	Calcium (%)	nr	P	0.034
	Cerium	40	S	0.2
	Chromium	57	MgO	2
	Cobalt	98	K ₂ O	2.92
	Europium	0.6	Na ₂ O	3.39
	Gold (ppb)	966	LOH000	1.01
	Hafnium	<5		
	Iridium (ppb)	<50	Neutron Activation Analyses and Fusion / XRF Analyses are single results and are indicative only. These are provided for matrix identification purposes.	
	Iron (%)	3.1	'nr': Not Reported	
	Lanthanum	23		
	Lutetium	0.4		
	Mercury	nr		
	Molybdenum	<10		
	Neodymium	nr		
	Nickel	<20		
	Potassium (%)	nr		
	Rubidium	133		
	Samarium	3.8		
	Scandium	11.2		
	Selenium	<10		
	Silver	<5		
	Sodium (%)	2.45		
	Strontium	nr		
	Tantalum	<2		
	Tellurium	<20		
	Terbium	1		
	Thorium	18.1		
	Tin	<200		
	Tungsten	<5		
	Uranium	10		
	Ytterbium	2.4		
	Zinc	1800		
	Zirconium	<500		

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