Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Gold Reference Material Product Code

G313-3

Certified Control Values

50 gram Fire Assay

Gold Grade 0.51 ppm
Standard Deviation 0.03 ppm
Confidence Interval +/- 0.005 ppm

Aqua Regia Digest

Gold Grade 0.49 ppm
Standard Deviation 0.05 ppm
Confidence Interval +/- 0.011 ppm



CRM Details

	Neutron Activa	tion	Major Eler	nents by
Control Statistic Details	Analysis Results (ppm,		Fusion / XRF (%)	
Control statistics were produced from results accumulated in the April-2013	unless otherwi	se noted)		` ′
round robin. A total of 159 fire assay results and 73 results from an aqua regia	Antimony	7.71	Fe	5.5
technique were used to certify this material.	Arsenic	27.6	SiO ₂	58.68
	Barium	332	Al ₂ O ₃	18.04
Material Description	Bromine	2.14	TiO ₂	0.811
This material is described as a Composite mine ore low copper.	Cadmium	4.38	MnO	0.07
	Caesium	1.77	CaO	2.59
	Calcium (%)	nr	Р	0.031
Colour Designation (ISCC-NBS, SP440)	Cerium	35.4	S	0.267
This material is pale red in colour.	Chromium	73.2	MgO	1.52
	Cobalt	7.35	K ₂ O	2.5
Usage	Europium	< 0.621	Na ₂ O	2.493
This product is for use in the mining industry as a reference material for	Gold (ppb)	528	LOI1000	4.58
monitoring and testing the accuracy of laboratory assaying.	Hafnium	6.02		
	Iridium (ppb)	<7.98	Neutron Act	ivation
Preparation and Packaging	Iron (%)	5.88	Analyses ar	d Fusion /
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry	Lanthanum	18.8	XRF Analys	es are
material is then pulverised to better than 75 micron (nominal mean of 45 micron)	Lutetium	0.358	single result	s and are
using an air classifier. The material is then homogenised and stored in a sealed,	Mercury	nr	indicative or	
stable container ready for final packaging.	Molybdenum	15.4		
	Neodymium	nr	are provided	
Materials are statistically sampled from stores, then packaged into either heat	Nickel	15.9	identification	n purposes.
sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready	Potassium (%)	nr	J	
for distribution. All packaging has been chosen to ensure minimal contamination	Rubidium	116	'nr': Not Rep	orted
from outside sources during shipment, use and storage.	Samarium	3.3		
	Scandium	11.9	ļ	
Assay Testwork	Selenium	<2.34		
All standards are tested thoroughly in the Geostats bi-annual laboratory survey.	Silver	5.05		
This involves assaying by multiple laboratories from around the world. Results are	Sodium (%)	1.96		
compiled into a comprehensive report detailing statistics for each standard. Assay	Strontium	nr	ĺ	
distributions are checked and processed statistically, producing monitoring statistics for these standards. Materials are tested regularly to ensure stability and	Tantalum	1.93		
	Tellurium	<2.67		
homogeneity.	Terbium	0.649		
	Thorium	31.7		
Stability	Tin	<37.9		
This product remains stable in its original packaging, away from direct sunlight.	Tungsten	<1.15		
L	Uranium	11.4		
Material Safety	Ytterbium	1.38		
This product is not hazardous and non-toxic.	Zinc	1241		
	Zirconium	181		

Major Elements by

GEOSTATS PTY LTD

Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Gold Reference Material Product Code

G913-4

Certified Control Values

50 gram Fire Assay

Gold Grade 1.37 ppm Standard Deviation 0.04 ppm Confidence Interval +/- 0.007 ppm

Aqua Regia Digest

Gold Grade 1.35 ppm Standard Deviation 0.08 ppm Confidence Interval +/- 0.017 ppm



Neutron Activation

CRM Details

	Neutron Activa			nents by
Control Statistic Details	Analysis Resul	Analysis Results (ppm,		RF (%)
Control statistics were produced from results accumulated in the October-2	2013 unless otherwi	se noted)		
round robin. A total of 171 fire assay results and 80 results from an aqua r	egia Antimony	1.31	Fe	9.09
technique were used to certify this material.	Arsenic	10	SiO ₂	47.48
	Barium	215	Al2O3	22.31
Material Description	Bromine	2.83	TiO ₂	1.211
This material is described as an Oxide ore.	Cadmium	< 0.979	MnO	0.07
	Caesium	1.22	CaO	2.56
	Calcium (%)	nr	P	0.036
Colour Designation (ISCC-NBS, SP440)	Cerium	32.2	S i	0.046
This material is pale reddish brown in colour.	Chromium	94.6	MgO	1.7
	Cobalt	7.31	K ₂ O	1.68
Usage	Europium	nr	Na ₂ O	1.794
This product is for use in the mining industry as a reference materia	for Gold (ppb)	1460	LOI1000	7.83
monitoring and testing the accuracy of laboratory assaying.	Hafnium	8.45		
	Iridium (ppb)	<20	Neutron Act	ivation
Preparation and Packaging	Iron (%)	9.36	Analyses an	d Fusion /
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The	dry Lanthanum	13.2	XRF Analys	es are
material is then pulverised to better than 75 micron (nominal mean of 45 micron	cron) Lutetium	0.389	single result	s and are
using an air classifier. The material is then homogenised and stored in a se-	aled, Mercury	nr	indicative or	
stable container ready for final packaging.	Molybdenum	21.4		•
	Neodymium	nr	are provided	
Materials are statistically sampled from stores, then packaged into either	heat Nickel	13.3	identification	n purposes.
sealed, air tight, plastic pulp packets or screw top sealed plastic containers r	eady Potassium (%)	nr		
for distribution. All packaging has been chosen to ensure minimal contamination		77.2	'nr': Not Rep	orted
from outside sources during shipment, use and storage.	Samarium	2.67		
	Scandium	14.8		
Assay Testwork	Selenium	<1.97		
All standards are tested thoroughly in the Geostats bi-annual laboratory su	rvey. Silver	4.38		
This involves assaying by multiple laboratories from around the world. Result	s are Sodium (%)	1.36		
compiled into a comprehensive report detailing statistics for each standard. A		nr		
distributions are checked and processed statistically, producing monitor	oring Tantalum	1.92		
statistics for these standards. Materials are tested regularly to ensure stability		nr		
homogeneity.	Terbium	0.58		
	Thorium	42.1	ļ	
Stability	Tin	nr		
This product remains stable in its original packaging, away from direct sunlig		1.37		
	Uranium	7.94		
Material Safety	Ytterbium	nr		
This product is not hazardous and non-toxic.	Zinc	42.6		

Major Elements by

GEOSTATS PTY LTD

Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Gold Reference Material Product Code

G913-9

Certified Control Values

50 gram Fire Assay

Gold Grade 4.91 ppm Standard Deviation 0.17 ppm Confidence Interval +/- 0.025 ppm

Aqua Regia Digest

Gold Grade 4.88 ppm Standard Deviation 0.21 ppm Confidence Interval +/- 0.048 ppm



Neutron Activation

CRM Details

Control Statistic Details	Analysis Results (ppm, Fusion /		Fusion / X	XRF (%)	
Control statistics were produced from results accumulated in the October-2013	unless otherwi	se noted)			
round robin. A total of 180 fire assay results and 78 results from an aqua regia	Antimony	0.053	Fe	4.55	
technique were used to certify this material.	Arsenic	<0.165	SiO ₂	64.16	
	Barium	448	Al ₂ O ₃	13.92	
Material Description	Bromine	0.68	TiO ₂	0.953	
This material is described as a Low sulphide mine ore.	Cadmium	<1.17	MnO	0.1	
'	Caesium	2.53	CaO	4.74	
	Calcium (%)	nr	Р	0.048	
Colour Designation (ISCC-NBS, SP440)	Cerium	39.1	S	0.04	
This material is light gray in colour.	Chromium	84.2	MgO	2.76	
	Cobalt	15.8	K ₂ O	2.32	
Usage	Europium	nr	Na ₂ O	3.33	
This product is for use in the mining industry as a reference material for	Gold (ppb)	5460	LOI1000	0.52	
monitoring and testing the accuracy of laboratory assaying.	Hafnium	3.65			
	Iridium (ppb)	<20	Neutron Act	ivation	
Preparation and Packaging	Iron (%)	5	Analyses ar	nd Fusion /	
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry	Lanthanum	24.1			
material is then pulverised to better than 75 micron (nominal mean of 45 micron)	Lutetium	0.471	Triti / trialy 300 are		
using an air classifier. The material is then homogenised and stored in a sealed,	Mercury	nr			
stable container ready for final packaging.	Molybdenum	10.3	indicative or	•	
	Neodymium	nr	are provided	for matrix	
Materials are statistically sampled from stores, then packaged into either heat	Nickel	17.8	identification	n purposes.	
sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready	Potassium (%)	nr			
for distribution. All packaging has been chosen to ensure minimal contamination	Rubidium	116	'nr': Not Rep	orted	
from outside sources during shipment, use and storage.	Samarium	4.22			
	Scandium	17.6			
Assay Testwork	Selenium	<2.72			
All standards are tested thoroughly in the Geostats bi-annual laboratory survey.	Silver	4.52			
This involves assaying by multiple laboratories from around the world. Results are	Sodium (%)	2.52			
compiled into a comprehensive report detailing statistics for each standard. Assay	Strontium	nr	l		
distributions are checked and processed statistically, producing monitoring	Tantalum	1.32			
statistics for these standards. Materials are tested regularly to ensure stability and	Tellurium	nr			
homogeneity.	Terbium	0.902			
	Thorium	16.3			
Stability	Tin	nr			
This product remains stable in its original packaging, away from direct sunlight.	Tungsten	0.916	J		
	Uranium	8.22			
Material Safety	Ytterbium	nr			
This product is not hazardous and non-toxic.	Zinc	78			

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Zirconium

Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Geochem Base Metal Reference Material Product Code

GBM313-4

Certified Control Values

Total Digest

		. Otal Bigoot		
Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	250	10	49	+/- 2.8
Copper (ppm)	342	9	55	+/- 2.5
Zinc (ppm)	337	18	58	+/- 4.8
Lead (ppm)	110	8	57	+/- 2.2
Arsenic (ppm)	385	13	42	+/- 4.1
Cobalt (ppm)	33	3	55	+/- 0.8
Silver (ppm)	2.7	0.2	48	+/- 0.07

	Partial Digest					
Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval		
Nickel (ppm)	230	17	49	+/- 5.1		
Copper (ppm)	344	16	64	+/- 4		
Zinc (ppm)	317	22	60	+/- 5.7		
Lead (ppm)	109	7	53	+/- 2		
Arsenic (ppm)	386	22	52	+/- 6.1		
Cobalt (ppm)	27	4	49	+/- 1.2		
Silver (ppm)	2.7	0.2	56	+/- 0.06		

CRM Details

	Neutron Activa	tion	Major Eler	nents by
Control Statistic Details			Fusion / XRF (%)	
Control statistics were produced from results accumulated in the April-2013	unless otherwi		usion / A	(70)
round robin. The number of results used to certify each analyte is shown in the	Antimony	101	Fe	7.04
table above.	Arsenic	403	SiO ₂	59.33
table above.	Barium	266	Al ₂ O ₃	12.09
Material Description	Bromine	2.81	TiO ₂	0.946
This material is described as a Composite ores - This material also certified for	Cadmium	<7.95	MnO	0.16
partial digests.	Caesium	3.04	CaO	4.31
partial digests.	Calcium (%)	nr	P	0.051
Colour Designation (ISCC-NBS, SP440)	Cerium	24.7	s	0.77
This material is grayish orange pink in colour.	Chromium	1100	MgO	4.03
This material is grayish orange pink in colodi.	Cobalt	33	K ₂ O	1.67
Usage	Europium	1.37	Na ₂ O	1.937
This product is for use in the mining industry as a reference material for	Gold (ppb)	2490	LOI1000	3.77
monitoring and testing the accuracy of laboratory assaying	Hafnium	2.36	2011000	0.11
monitoring and testing the accuracy of laboratory assaying	Iridium (ppb)	<14.5	Neutron Act	ivation
Preparation and Packaging	Iron (%)	7.33	Analyses an	
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry	Lanthanum	11.4	, ,	
material is then pulverised to better than 75 micron (nominal mean of 45 micron)	Lutetium	0.349	XRF Analys	
using an air classifier. The material is then homogenised and stored in a sealed,	Mercury	nr	single result	s and are
stable container ready for final packaging	Molybdenum	2.99	indicative or	ıly. These
Stable Container ready for final packaging	Neodymium	nr	are provided	for matrix
Materials are statistically sampled from stores, then packaged into either heat	Nickel	284	identification	purposes
sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready	Potassium (%)	nr		
for distribution. All packaging has been chosen to ensure minimal contamination	Rubidium	71.6	'nr'; Not Rep	orted
from outside sources during shipment, use and storage.	Samarium	3.55	III . NOC NOP	ontou
Horri outside sources during shipment, use and storage.	Scandium	17.9		
Assay Testwork	Selenium	<4.52		
All standards are tested thoroughly in the Geostats bi-annual laboratory survey.	Silver	2.3	1	
This involves assaying by multiple laboratories from around the world. Results are	Sodium (%)	1.53	ľ	
compiled into a comprehensive report detailing statistics for each standard.	Strontium	nr		
Assay distributions are checked and processed statistically, producing monitoring	Tantalum	3.1		
statistics for these standards. Materials are tested regularly to ensure stability and	Tellurium	<6.87		
homogeneity.	Terbium	0.686	1	
Hornogenery.	Thorium	6.09		
Stability	Tin	<96.8	ľ	
This product remains stable in its original packaging, away from direct sunlight.	Tungsten	9.7		
This product remains stable in the original pastaging, and in an extra annual	Uranium	3.7		
Material Safety	Ytterbium	1.67		
This product is not hazardous and non-toxic.	Zinc	400		
The branes of the Hammana and Alla Latter	Zirconium	<189		

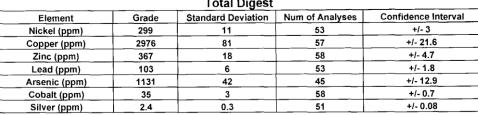
Mining Industry Consultants Reference Material Manufacture and Sales

Certified Geochem Base Metal Reference Material Product Code

GBM313-7

Certified Control Values

Total Digest



	Partial Digest					
Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval		
Nickel (ppm)	293	18	48	+/- 5.2		
Copper (ppm)	3019	129	65	+/- 32.2		
Zinc (ppm)	359	27	58	+/- 7		
Lead (ppm)	105	9	55	+/- 2.5		
Arsenic (ppm)	1155	60	57	+/- 16.2		
Cobalt (ppm)	36	5	48	+/- 1.5		
Silver (ppm)	2.4	0.2	55	+/- 0.06		

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CRM Details

	Neutron Activa	tion	Major Eler	nents by
Control Statistic Details	Analysis Results (p			RF (%)
Control statistics were produced from results accumulated in the April-2013	unless otherwi			` '
round robin. The number of results used to certify each analyte is shown in the	Antimony	15	Fe	9.18
table above.	Arsenic	1140	SiO ₂	52.29
table above.	Barium	262	Al ₂ O ₃	12.62
Material Description	Bromine	4.26	TiO ₂	0.68
This material is described as a Copper Gold ore - This material also certified for	Cadmium	<6.65	MnO	0.13
partial digests.	Caesium	10.5	CaO	4.92
partial algebra.	Calcium (%)	nr	P	0.05
Colour Designation (ISCC-NBS, SP440)	Cerium	35.4	S	1.89
This material is pale yellowish brown in colour.	Chromium	310	MgO	2
The material to part formation and a second	Cobalt	35.8	K ₂ O	2.06
<u>Usage</u>	Europium	<0.679	Na ₂ O	1.227
This product is for use in the mining industry as a reference material for	Gold (ppb)	3540	LOI1000	6.83
monitoring and testing the accuracy of laboratory assaying	Hafnium	2.9		
monitoring and teeming and december of the control	Iridium (ppb)	<11.4	Neutron Act	ivation
Preparation and Packaging	Iron (%)	8.99	Analyses an	nd Fusion /
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry	Lanthanum	13.5	, ,	
material is then pulverised to better than 75 micron (nominal mean of 45 micron)	Lutetium	0.321	ATT ATTAIN 303 are	
using an air classifier. The material is then homogenised and stored in a sealed,	Mercury	nr		
stable container ready for final packaging	Molybdenum	8.13	indicative only. These	
Stable Serialist Factor and Participation	Neodymium	nr	are provided	for matrix
Materials are statistically sampled from stores, then packaged into either heat	Nickel	333	identification	n purposes.
sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready	Potassium (%)	nr		
for distribution. All packaging has been chosen to ensure minimal contamination	Rubidium	117	'nr': Not Rep	corted
from outside sources during shipment, use and storage.	Samarium	3.87	1	
The state of the s	Scandium	17.9		
Assay Testwork	Selenium	<2.04		
All standards are tested thoroughly in the Geostats bi-annual laboratory survey.	Silver	2.4		
This involves assaying by multiple laboratories from around the world. Results are	Sodium (%)	0.909	l	
compiled into a comprehensive report detailing statistics for each standard.	Strontium	nr		
Assay distributions are checked and processed statistically, producing monitoring	Tantalum	0.651	1	
statistics for these standards. Materials are tested regularly to ensure stability and	Tellurium	<9.53		
homogeneity.	Terbium	0.486	i	
name de la company.	Thorium	4.59	ł	
Stability	Tin	<69.9		
This product remains stable in its original packaging, away from direct sunlight.	Tungsten	36.6		
	Uranium	1.76		
Material Safety	Ytterbium	1.44		
This product is not hazardous and non-toxic.	Zinc	410	1	
,	7ironnium	-220	1	

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Zirconium

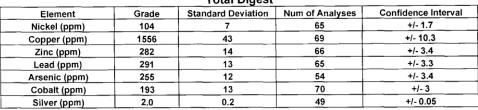
Mining Industry Consultants
Reference Material Manufacture and Sales

Certified Geochem Base Metal Reference Material Product Code

GBM913-4

Certified Control Values

Total Digest



Partial Digest

Element	Grade	Standard Deviation	Num of Analyses	Confidence Interval
Nickel (ppm)	102	9	59	+/- 2.5
Copper (ppm)	1534	73	73	+/- 17.2
Zinc (ppm)	250	17	65	+/- 4.2
Lead (ppm)	195	24	57	+/- 6.3
Arsenic (ppm)	256	16	63	+/- 4
Cobalt (ppm)	192	15	58	+/- 4
Silver (ppm)	1.9	0.2	62	+/- 0.04

CRM Details

	Neutron Activation		Major Elements by	
Control Statistic Details	Analysis Results (ppm,		Fusion / XRF (%)	
Control statistics were produced from results accumulated in the October-2013	unless otherwi	se noted)		
round robin. The number of results used to certify each analyte is shown in the	Antimony	37.4	Fe	7.53
table above.	Arsenic	259	SiO ₂	78.11
	Barium	1140	Al ₂ O ₃	1.12
Material Description	Bromine	<0.412	TiO ₂	0.978
This material is described as a High sulphide epithermal deposit in Peru - This	Cadmium	<2.86	MnO	0.01
material also certified for partial digests	Caesium	0.226	CaO	0.03
	Calcium (%)	nr	P	0.011
Colour Designation (ISCC-NBS, SP440)	Cerium	<5.72	S	7.82
This material is medium gray in colour.	Chromium	20.5	MgO	0.05
	Cobalt	195	K ₂ O	0.204
Usage	Europium	nr	Na ₂ O	0.04
This product is for use in the mining industry as a reference material for	Gold (ppb)	7390	LO11000	8.31
monitoring and testing the accuracy of laboratory assaying	Hafnium	5.25		
	Iridium (ppb)	<20	Neutron Acti	vation
Preparation and Packaging	Iron (%)	7.81	Analyses an	d Fusion /
All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry	Lanthanum	2.55	XRF Analys	es are
material is then pulverised to better than 75 micron (nominal mean of 45 micron)	Lutetium	0.203	single result	s and are
using an air classifier. The material is then homogenised and stored in a sealed,	Mercury	nr	l "	
stable container ready for final packaging	Molybdenum	26	indicative or	•
	Neodymium	nr	are provided	for matrix
Materials are statistically sampled from stores, then packaged into either heat	Nickel	100	identification	purposes.
sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready	Potassium (%)	nr		
for distribution. All packaging has been chosen to ensure minimal contamination	Rubidium	<4.63	'nr': Not Rep	orted
from outside sources during shipment, use and storage.	Samarium	0.363	1	
	Scandium	3,6		
Assay Testwork	Selenium	4.3		
All standards are tested thoroughly in the Geostats bi-annual laboratory survey.	Silver	1.2	ĺ	
This involves assaying by multiple laboratories from around the world. Results are	Sodium (%)	0.026		
compiled into a comprehensive report detailing statistics for each standard.	Strontium	nr		
Assay distributions are checked and processed statistically, producing monitoring	Tantalum	0.603		
statistics for these standards. Materials are tested regularly to ensure stability and	Tellurium	nr		
homogeneity.	Terbium	<0.0968		
	Thorium	2.5		
Stability	Tin	nr		
This product remains stable in its original packaging, away from direct sunlight.	Tungsten	4.68	ļ	
	Uranium	1.89		
Material Safety	Ytterbium	nr		
This product is not hazardous and non-toxic.	Zinc	270		
	Zirconium	nr		