



Analytical Report



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Report ID: A15-04930

Sample Name: SILVER CITY

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Analysis Methods

1) FUS-ICP (Fusion-Inductively Coupled Plasma)

An oxidized sample is dissolved in a borate flux and then diluted in aqueous nitric acid. ICP-OES is used to quantify various elements in the resulting solution.

2) Satmagan

The force acting in a sample is measured while it is in a magnetic field with a spatial gradient.

3) TD-ICP (Total Digestion-Inductively Coupled Plasma)

A sample is digested via sequential addition of hydrofluoric, perchloric, and nitric acids. The acids are evaporated and the residue reconstituted in aqua regia. ICP-OES is used to quantify various elements in the resulting solution.

4) INAA (Instrumental Neutron Activation Analysis)

Samples are bombarded with neutrons to generate radioactive nuclides. Measurement of the energy and intensity of the alpha particles generated by their subsequent decay is used to quantify the various elements present in the original sample.

5) PGNA (Prompt Gamma Neutron Activation Analysis)

Similar to INAA, except the energy and intensity of the alpha particles generated during neutron bombardment is used to quantify the various elements present in the original sample.

	Test Value	Unit Symbol	Detection Limit	Analysis Method
Silica (SiO2)	43.50	%	0.01	FUS-ICP
Alumina (Al2O3)	4.48	%	0.01	FUS-ICP
Calcium Oxide (CaO)	3.89	%	0.01	FUS-ICP
Iron (III) Oxide(Total) (Fe2O3(T))	7.04	%	0.01	FUS-ICP
Potassium Oxide (K2O)	4.34	%	0.01	FUS-ICP
LOI (LOI)	12.64	%		FUS-ICP
Magnesium Oxide (MgO)	18.76	%	0.01	FUS-ICP
Manganese Oxide (MnO)	0.09	%	0.01	FUS-ICP
Soda (Na2O)	0.36	%	0.01	FUS-ICP
Phosphorus Pentoxide (P2O5)	0.92	%	0.01	FUS-ICP
Sulfur (S)	0.001	%	0.001	TD-ICP
Titanium Dioxide (TiO2)	2.565	%	0.005	FUS-ICP
Total (Total)	98.59	%	0.01	FUS-ICP
Mass (Mass)	1.461	g		INAA
Mass (Mass)	1.01	g		PGNA
Gold (Au)	< 5	ppb	5	INAA
Iridium (Ir)	< 5	ppb	5	INAA
Silver (Ag)	0.9	ppm	0.5	MULT INAA / TD-ICP
Arsenic (As)	< 2	ppm	2	INAA
Boron (B)	5	ppm	2	PGNA
Barium (Ba)	5600	ppm	3	MULT INAA/FUSICP
Beryllium (Be)	4	ppm	1	FUS-ICP
Bismuth (Bi)	< 2	ppm	2	TD-ICP
Bromine (Br)	< 1	ppm	1	INAA
Cadmium (Cd)	< 0.5	ppm	0.5	TD-ICP
Cerium (Ce)	281	ppm	3	INAA
Cobalt (Co)	58	ppm	1	INAA
Chromium (Cr)	1270	ppm	1	INAA
Cesium (Cs)	< 0.5	ppm	0.5	INAA
Copper (Cu)	36	ppm	1	TD-ICP
Europium (Eu)	2.6	ppm	0.1	INAA
Gallium (Ga)	7	ppm	5	PPXRF
Hafnium (Hf)	18.2	ppm	0.5	INAA
Mercury (Hg)	< 1	ppm	1	INAA
Lanthanum (La)	152	ppm	0.2	INAA
Lutetium (Lu)	0.15	ppm	0.05	INAA
Molybdenum (Mo)	< 2	ppm	2	TD-ICP
Niobium (Nb)	62	ppm	1	PPXRF
Neodymium (Nd)	94	ppm	5	INAA
Nickel (Ni)	805	ppm	1	TD-ICP
Lead (Pb)	27	ppm	5	TD-ICP
Rubidium (Rb)	143	ppm	2	PPXRF
Antimony (Sb)	< 0.2	ppm	0.2	INAA
Scandium (Sc)	11.6	ppm	0.1	INAA
Selenium (Se)	< 3	ppm	3	INAA
Samarium (Sm)	10.8	ppm	0.1	INAA
Tin (Sn)	10	ppm	5	PPXRF
Strontium (Sr)	1714	ppm	2	FUS-ICP
Tantalum (Ta)	< 1	ppm	1	INAA
Terbium (Tb)	< 0.5	ppm	0.5	INAA
Thorium (Th)	13.7	ppm	0.5	INAA
Uranium (U)	3.0	ppm	0.5	INAA
Vanadium (V)	56	ppm	5	FUS-ICP
Tungsten (W)	< 3	ppm	3	INAA
Yttrium (Y)	12	ppm	1	FUS-ICP
Ytterbium (Yb)	1.0	ppm	0.1	INAA
Zinc (Zn)	64	ppm	1	TD-ICP
Zirconium (Zr)	566	ppm	2	FUS-ICP

Results Approved By:



Emmanuel Esemé, Ph.D.
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