



# United States Geological Survey

## Certificate of Analysis

### Andesite, AGV-2

Material used in the preparation of AGV-2 was collected from the eastern side of Guano Valley, in Lake County, Oregon. This is the same location used to provide material for AGV-1. Information on the mineralogy and classification of AGV-2 is unavailable but it is assumed to be very similar to AGV-1 (Flanagan, 1967, 1969). Element concentrations for AGV-2 were obtained through a round-robin study involving 23 international laboratories.

Element concentrations are recommended, if results from three or more independent laboratories using three or more independent analytical procedures are in statistical agreement. Information values with standard deviations are reported when three or more independent laboratories using at least two independent analytical procedures have provided information. Information values without standard deviations represent information from a single laboratory or analytical procedure. All isotopic information is from a single laboratory.

#### Recommended values

Oxide	Wt %	±	Oxide	Wt %	±
Al	8.95	0.11	Al <sub>2</sub> O <sub>3</sub>	16.91	0.21
Ca	3.72	0.09	CaO	5.20	0.13
Fe	4.68	0.09	Fe <sub>2</sub> O <sub>3</sub> T	6.69	0.13
K	2.39	0.09	K <sub>2</sub> O	2.88	0.11
Mg	1.08	0.02	MgO	1.79	0.03
Na	3.11	0.09	Na <sub>2</sub> O	4.19	0.13
P	0.21	0.01	P <sub>2</sub> O <sub>5</sub>	0.48	0.02
Si	27.7	0.35	SiO <sub>2</sub>	59.3	0.7
Ti	0.63	0.13	TiO <sub>2</sub>	1.05	0.22
Element	µg/g	±	Element	µg/g	±
Ba	1140	32	Pb	13	1
Be	2.3	0.4	Pr	8.3	0.6
Ce	68	3	Rb	68.6	2.3
Co	16	1	Sc	13	1
Cr	17	2	Sr	658	17
Cu	53	4	Th	6.1	0.6
Dy	3.6	0.2	U	1.88	0.16
Ga	20	1	V	120	5
La	38	1	Y	20	1
Mn	770	20	Yb	1.6	0.2
Nb	15	1	Zn	86	8
Nd	30	2	Zr	230	4
Ni	19	3			

### Information values

Element	$\mu\text{g/g}$	$\pm$	Element	$\mu\text{g/g}$	$\pm$
Cs	1.16	0.08	Lu	0.25	0.01
Er	1.79	0.11	Sb	0.6	
Eu	1.54	0.10	Sm	5.7	0.3
F	440		Sn	2.3	0.4
Gd	4.69	0.26	Ta	0.89	0.08
Hf	5.08	0.20	Tb	0.64	0.04
Ho	0.71	0.08	Tl	0.27	
Li	11		Tm	0.26	0.02

Element	Ratios	$\pm$	N
Pb <sup>206</sup> / <sub>204</sub>	18.864	0.007	1
Pb <sup>207</sup> / <sub>204</sub>	15.609	0.006	1
Pb <sup>208</sup> / <sub>204</sub>	38.511	0.020	1

### Bibliography

Wilson, S.A., 1998, Data compilation and statistical analysis of intralaboratory results for AGV-2, U.S. Geological Survey Open-File Report (in progress).

### Glossary

Wt %	Percent of total element concentration
$\mu\text{g/g}$	Total element concentration expressed as micrograms of element per gram of solid sample
$\pm$	One standard deviation
N	Number of labs reporting

Issued 4-30-98  
Denver, Colorado

Dr. Geoff Plumlee  
U.S. Geological Survey  
Central Region Mineral Team

### Ordering Information

USGS reference materials (RMs) may be obtained directly from Dr. Stephen A. Wilson at the address or numbers listed below. The price for each bottle of RM is \$80.00 (U.S.) **except** DGPM-1 which is \$175.00 (U.S.). This cost includes all shipping and handling charges using normal mail delivery. Urgent requests for RMs should be initiated by FAX or e-mail. If required, overnight delivery is available with these charges added to the final bill.

Dr. Stephen A. Wilson  
U.S. Geological Survey  
Box 25046, MS 964  
Denver, CO 80225

Tel: 303-236-2454  
FAX: 303-236-3200 or 303-236-1425  
e-mail: [swilson@usgs.gov](mailto:swilson@usgs.gov)

## Payment Options

**Domestic customers:** Payment options include purchase order, check, money order, or credit card (Visa, Mastercard).

**International customers:** Payment on foreign orders may be made by any of the following:

- a. Banker's draft against an international bank,
- b. International money order,
- c. Credit card (Visa, Mastercard)

Payments for domestic or international orders using a credit card receive a 10% discount on the per bottle price.

---

**BACK**

URL: [http://minerals.cr.usgs.gov/geo\\_chem\\_stand/andesite2.pdf](http://minerals.cr.usgs.gov/geo_chem_stand/andesite2.pdf)