

Alpha Resources, Inc.

Certificate Of Analysis

AR-2753
MINERAL ANALYSIS STANDARD
LOT # 753716 LID # 773913

WEIGHT PERCENT MINERAL ANALYSIS OF ASH

SILICON OXIDE	=	27.30	± 6.49
ALUMINUM OXIDE	=	16.15	± 3.24
TITANIUM OXIDE	=	0.92	± 0.06
FERRIC OXIDE	=	7.33	± 0.55
CALCIUM OXIDE	=	19.36	± 2.42
MAGNESIUM OXIDE	=	5.24	± 1.18
POTASSIUM OXIDE	=	0.31	± 0.08
SODIUM OXIDE	=	1.82	± 0.57
SULFUR TRIOXIDE	=	19.17	± 2.01
PHOSPHORUS PENTOXIDE	=	0.48	± 0.10
STRONTIUM OXIDE	=	0.39	± 0.12
BARIUM OXIDE	=	0.51	± 0.05
MANGANESE OXIDE	=	(0.03)	
UNDETERMINED	=	(0.99)	

The ash content of the whole coal is 5.03% ±0.24. () represents for reference only

Methods

ASTM D 3174/D7582 -Ash
ASTM D 6349 – Mineral Analysis
ASTM D 4326 – Mineral Analysis

The material used in production of this standard was prepared and identified in accordance with ARI 041. The uncertainty values represent the expanded uncertainty (k=2, 95% confidence limit) obtained through analytical testing by the mentioned ASTM methods, and may not reflect your testing capabilities. Normal test procedures should be employed when using this standard; this includes using the *reproducibility* and *repeatability* factors of the method for establishing analytical uncertainty if needed. When necessary, professional judgment is applied toward consideration of data and statistical information. The statistical analysis and the overall direction and coordination of the analytical measurements leading to certification were performed by K.E. Dyer, Technical Manager at Alpha Resources.

The samples for round robin testing were selected in accordance with ARI 031. The above values relate only to the material used to produce this standard. The analytical samples should be dried or corrected for moisture as per the test method you are using. This bottle contains 50g fine coal powder (-60 mesh). Kept sealed this product has an indefinite shelf life. Once opened this certificate is valid for two years. Keep sealed tight and store under normal laboratory conditions. This certificate cannot be reproduced except in full.

Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Alpha Resources be liable for incidental or consequential damages. For good laboratory practice it is recommended that all standards be verified prior to use. This standard was produced in accordance to ISO Guide 34 and Guide 31. Alpha Resources has become accredited under the ISO Guide 34:2009 for RMP and holds a ISO 17025 accreditation. Refer to certificate and scope of accreditation for details.

EXPIRATION DATE

THIS CRM IS VALID FOR TWO YEARS FROM THE DATE OF OPENING

CERTIFIED July 5, 2016

