

Alpha Resources, Inc.

Certificate Of Analysis

AR-756

GREEN PETROLEUM COKE STANDARD

LOT # 561203

LID # 561203

ALL ANALYSIS REPORTED ON A DRIED BASIS VALUE

| Method | | | Uncertainty |
|------------|-------------------------------|----------|----------------|
| ASTM D4239 | MEAN WEIGHT PERCENT SULFUR | = 5.27 | +/- 0.47 |
| ASTM D4422 | MEAN WEIGHT PERCENT ASH | = (0.92) | Reference only |
| ASTM D4421 | MEAN WEIGHT PERCENT VOL. MAT. | = 6.52 | +/- 1.37 |
| ASTM D5865 | BTU/POUND | = 14,494 | +/- 399 |
| ASTM D5373 | MEAN WEIGHT PERCENT CARBON | = 89.60 | +/- 2.51 |
| ASTM D5373 | MEAN WEIGHT PERCENT HYDROGEN | = 1.66 | +/- 0.30 |
| ASTM D5373 | MEAN WEIGHT PERCENT NITROGEN | = 1.90 | +/- 0.17 |
| ASTM D5056 | PARTS PER MILLION NICKEL | = 290 | +/- 29 |
| ASTM D5056 | PARTS PER MILLION IRON | = 317 | +/- 89 |
| ASTM D5056 | PARTS PER MILLION VANADIUM | = 1675 | +/- 120 |
| ASTM D5056 | PARTS PER MILLION CALCIUM | = 105 | +/- 36 |
| ASTM D5056 | PARTS PER MILLION SILICON | = 386 | +/- 185 |

Methods:

ASTM D 4239 Method C

ASTM D 4422

ASTM D 4421

ASTM D 5373

ASTM D 5056

Note: This certificate was revised on November 5, 2013 by K. E. Dyer, to include method uncertainty.

Notes:

The material used in production of this standard was sampled in accordance with ARI 031. The above values relate only to the material used to produce this standard.

The overall direction and coordination of the analytical measurements leading to certification was performed by J.R. Shingledecker at Alpha Resources.

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.

This is a Certified Reference Material (CRM). For good laboratory practice it is recommended that all standards be verified prior to use.

EXPIRATION DATE

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

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Page 1 Of 1