

**Certificate of Analysis
Part No. B2303
Sulphur in Coal Standard**

Certificate Number 031120
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Dried Basis Value

**Weight Percent Sulphur = 0.87
Expanded Uncertainty = ± 0.04**

Method

ASTM D 4239-18 AND ARI-LAB-616

This RM is traced to N.I.S.T. SRM 2692c and NCS FC28006j

Alpha- AR1703-703415, AR1702-702819, AR1703-021011, AR1702-031008, AR1704-704316

The intended use of this reference material is for the calibration and quality validation of sulphur by resistance furnace combustion, infra-red detection analysis as specified by ASTM D4239 or other valid test methods. The analytical values were derived by a number of data points (n=34) and reported in mass fraction. The sample size used, and minimum sample size is approximately 300-500mg. The precision value represents the expanded degree of uncertainty based on errors from analytical assay at a 95% confidence level (k=2) utilizing ISO Guide 35, ANOVA, and the Guide to Uncertainty Measurement. Metrological traceability is to the SI derived unit of mass fraction expressed as percent. Formal testing procedures should be followed when using this standard; this includes using the reproducibility and repeatability factors of the method for establishing overall analytical uncertainty. When necessary, professional judgment is applied toward consideration of data and statistical information.

The material used in production of this reference standard was identified in accordance with ARI-LAB-603. The samples for round robin testing were selected in accordance with ARI-LAB-625. The above values relate only to the material used to produce this reference. The analytical samples were dried per the NMI used or corrected for moisture as per the test method. Keep sealed and store under normal laboratory conditions.

Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Elemental Microanalysis Ltd be liable for incidental or consequential damages. This bottle contains 50g, minus 60 mesh (250 micron) coal powder. While unable to determine a definite shelf life, this reference standard should be reviewed 20 years from the date of certification. Once opened this certificate is valid for two years. This certificate cannot be reproduced except in full.

This Reference Material is traceable to the above-mentioned standards. For good laboratory practice, it is recommended that all standards be verified as fit for purpose prior to use. These test results are accredited under the Alpha Resources LLC laboratory's ISO/IEC 17025 and ISO 17034 (RMP) accreditation issued by ANSI-ASQ/ANAB. Refer to certificate and scope of accreditation(s) AT-1200 and AR-1920.

EXPIRATION DATE

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

Certified December 14, 2020

Elemental Microanalysis Limited