

**Dried Basis Value**

**Weight Percent Sulphur = 0.055  
Expanded Uncertainty =  $\pm 0.004$   
Method: ARI-035**

Combustion under Oxygen by Resistance Furnace with IR Detection \*ASTM D4239 (below method scope range)

This Reference Material is traced to AR1683-831015, AR1682-682514, AR1684-684610,  
AR1683-683610, AR1684-684414, AR1682-682610

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. This Reference Material (RM) was prepared by gravimetric blending and verified by analysis. The typical sample size used and minimum sample size for analysis is approximately 300 500mg. The analytical value was calculated from a number of data points (n=36) obtained on instrumentation using combustion by resistance furnace with IR detection similar to ASTM D4239. 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. When necessary, professional judgment is applied toward consideration of data and statistical information. This Reference Material is below actual test method limits and no known NMI references at this concentration are available.

The material used for this standard was identified by AR 041. The samples for testing were selected in accordance with ARI 031. The above values relate only to the material used to produce this standard. The analytical samples were dried under a nitrogen atmosphere for a minimum of 30 minutes at  $107^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , or until a steady mass is achieved. This bottle contains 50g fine -60 mesh (250 $\mu\text{m}$ ) powder to be used per your test method. While unable to determine a definite shelf life this RM should be reviewed 20 years after the certification date. Once opened by the end user this certificate is valid for 2 years. Keep sealed immediately after use 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. The above values relate only to the material used to produce this standard. This certificate cannot be reproduced except in full.

This RM is traceable to the above-mentioned reference material(s). For good laboratory practice, it is recommended that all reference materials be verified as fit for purpose prior to use.

EXPIRATION DATE: THIS CRM SHOULD BE REVIEWED 20 YEARS FROM THE DATE OF CERTIFICATION

Certified January 31, 2020

Elemental Microanalysis Limited