

30% Loss on Ignition Certified Reference Material

Product No: AR4108**Lot No: 240924**

Material and Intended Use

AR4108 is a calcium oxalate-based certified reference material (CRM). The intended use of this CRM is for the calibration and verification of thermogravimetric analyzers and other appropriate methods for the determination of loss on ignition at 950°C. This CRM can also be used to verify value assignment of in-house reference materials. A unit consists of one bottle containing 100 g of reference material as a fine powder. All reference materials should be verified as fit for purpose prior to use.

Instructions for Use

It is recommended that this CRM be dried at 105°C until constant mass before use. The minimum sample size for analysis is dependent upon the test method and instrumentation used. It is recommended that no less than 1.0 g of material be used for macro TGA analysis. Bottles of powder should be kept sealed tight and stored in a cool, dry location. Reported values are valid for 15 years from the initial date of certification if handling and storage instructions are followed. Values are rendered null and void if the CRM is in any way modified or damaged.

Reported Values

Certified values are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as a percent (%) and indicate the amount of the overall material matrix lost on ignition at 950°C. Certified values are reported as the mean property value with an expanded uncertainty ($U_{95\%}$). The true value of the measurand is believed to lie within the expanded uncertainty coverage interval with 95% confidence. Expanded uncertainty is calculated by application of a coverage factor (k) to the combined standard uncertainty (u_c). For laboratory uncertainty budgets, the combined standard uncertainty can be calculated as $u_c = U_{95\%}/k$, where k is approximately equal to 2. The estimation of combined standard uncertainty (u_c) includes contributions from material homogeneity, primary calibrants, characterization, and other factors. Sampling and calculation of reported values for each measurand are performed using practices consistent with ISO 17034:2016 and ISO Guide 35. Certified values are accredited under Alpha Resources, LLC ISO/IEC 17025 and ISO 17034 certificates issued by ANSI National Accreditation Board (ANAB), AT-1200 and AR1920.

Table 1. Certified values for AR4108, Lot240924.

Property	Certified Value	$U_{95\%}$	Method & Detection	n
%LOI	30.17	0.31	Thermogravimetry	30

Homogeneity

This product was manufactured from raw materials using pulverizing and blending. Samples were randomly selected using practices consistent with ISO Guide 35 Section 7. Homogeneity was evaluated by replicate analysis. Within- and between-sample variance was evaluated using Analysis of Variance (ANOVA).

Methods and References

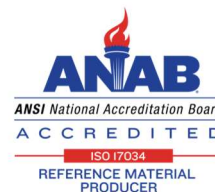
ARI-LAB-624 – Alpha Resources Method, Calcium Oxalate Analysis by Thermogravimetric Method
ISO/IEC 17025:2017 – General requirements for the competence of testing and calibration laboratories
ISO 17034:2016 – General requirements for the competence of reference material producers
ISO 33401:2024 – Reference materials – Contents of certificates, labels, and accompanying documentation
ISO Guide 30:2015 – Terms and definitions used in connection with reference materials
ISO Guide 35:2017 – Reference materials – General and statistical principles for certification



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