



Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: CICM-697

Lot Issue Date: 28-Sep-2017

Lot Number: CL-5276Z

Expiration Date: 31-Oct-2019

Product Name: ICP-MS Tuning Solution Low Concentration

Description:

This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. For each analyte, the calculated value and manufacturing tolerance is reported below.

Analyte	Starting Material	Lot Number	Purity	Calculated Value
lithium carbonate (ICP grade) (as lithium)	lithium carbonate	RM07634	99.999 %	10.0 ± 0.1 µg/L
yttrium oxide (ICP grade) (as yttrium)		BH02380		10.0 ± 0.1 µg/L
cerium (III) nitrate (ICP grade) (as cerium)	cerium (III) nitrate hexahydrate	RM07893	99.99 %	10.0 ± 0.1 µg/L
thallium (I) nitrate (ICP grade) (as thallium)	thallium (I) nitrate	RM07900	99.999 %	10.0 ± 0.1 µg/L
cobalt nitrate hexahydrate (ICP grade) (as cobalt)	cobalt nitrate hexahydrate	RM07861	99.999 %	10.0 ± 0.1 µg/L

Solvent: water with dilute nitric acid

Storage: Store at Room Temperature (15° to 30°C).

Traceability:

Balances used are calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Homogeneity:

This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:

This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay. Each unit contains slightly more than the stated labeled volume to facilitate transfer of the material for testing.

Should crystallization occur after refrigeration, gentle warming (<40°C) and shaking of the container is usually sufficient to re-dissolve the material. If this is unsuccessful, an ultrasonic bath may be used. Solutions containing volatile components (such as gases) should be chilled prior to opening to minimize headspace problems.

Hazards:

Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:

The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:


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The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.



John Russo
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