# 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/NCSL 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Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay.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
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER



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