Certified Reference Material

Certificate of Traceability

U.S. Department of Energy
Radiological and Environmental Sciences Laboratory
1955 Fremont Avenue, MS 2112
Idaho Falls, Idaho 83415
(208) 526-8031

CRM ID: MAPEP 13-RdV29

This Certified Reference Material (CRM) contains a known quantity of analyte(s) in a stable and homogeneous matrix. This material is intended for the calibration of instruments and for the verification of the accuracy and precision of analytical measurements. The reference value listed for each analyte is mathematically derived from a certified value traceable to a national or international standard. The traceability of the CRM is maintained through an unbroken chain of comparisons, all having stated uncertainties, calculated according to ISO and NIST Guidelines.

This CRM was prepared and the reference value(s) were verified by the Radiological and Environmental Sciences Laboratory (RESL). RESL maintains direct traceability to the United States National Institute of Standards and Technology (NIST) through successful participation in the NIST/RESL Radiological Traceability Program. RESL is accredited to ISO 17043 (2377.02) as a Performance Testing Provider, ISO 17025 (2377.01) as a Chemical Testing Laboratory, and ISO G34 (2377.03) as a Reference Material Producer by The American Association for Laboratory Accreditation.

David S. Sill
Senior Technical Manager - Chemistry

ISO/IEC GUIDE 34:2009

ACCREDITED

REFERENCE MATERIAL PRODUCER
CERTIFICATE NO. 2377.03

RESL CRM
Certified Reference Material

USDOE-RESL CRM ATTACHMENT

CRM ID: MAPEP 13-RdV29 **Matrix: Veg**

Reference Date: 8/1/2013

Radionuclide	Reference Value*
Am-241	5.21 +/- 0.10 E0 pCi
Cs-134	1.40 +/- 0.03 E2 pCi
Cs-137	1.78 +/- 0.03 E2 pCi
Mn-54	2.13 +/- 0.05 E2 pCi
Pu-239	4.62 +/- 0.10 E0 pCi
Sr-90	6.26 +/- 0.15 E1 pCi
Zn-65	7.1 +/- 0.2 E1 pCi

*Uncertainties are reported with a coverage factor of k=1.

Special Instructions for the Proper Use of the CRM

This CRM contains two individual samples and is prepared from timothy grass hay.
The larger 95-gram sample is intended to be used for direct gamma spectrometry measurements. This sample has been prepared to be sufficiently homogeneous for its intended purpose; however, the sample should not be subdivided.
The smaller 10-gram sample is intended for radiochemistry measurements that require sample dissolution. The entire sample must be taken for analysis and should not be subdivided.
Depending on laboratory capabilities or requirements, the larger sample may also be used for measurements that require sample dissolution.

Storage and Handling of CRM

This CRM should be maintained in its original packaging until use. There are no specific restrictions for storage of this CRM. This CRM should be stable under normal laboratory conditions until the date listed in the Expiration Date. If the validity of the CRM becomes questionable or technical assistance is needed please contact RESL.

Verification of Certified Reference Activity

The analyte(s) in this CRM have been verified by alpha spectrometry, liquid scintillation counting and high resolution gamma spectrometry against an independent source(s) which are traceable to the National Institute of Standards and Technology.

Hazards

The below link takes you to the MSDS for this material. Please select Vegetation.
http://www.inl.gov/resl/mapep/describe.html

Preparation Date: 8/1/2013
Certificate Issue Date: 2/5/2014
Expiration Date: 8/1/2020

END OF CERTIFICATE