

CERTIFICATE OF CALIBRATION GAMMA STANDARD SOURCE

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|--------------------------------------|--|
| Radionuclide: Cs-137 | Customer: IDAHO STATE UNIVERSITY |
| Half-life: 30.17 ± 0.16 years | P.O. No.: 2224342 |
| Catalog No.: GF-137 | Reference Date: 1-Apr-02 12:00 PST |
| Source No.: 895-60-1 | Contained Radioactivity: 100.2 μCi 3707 kBq |

Physical description:

| | |
|------------------------------|--------------------------------|
| A. Capsule type: | M |
| B. Nature of active deposit: | Evaporated metallic salt |
| C. Active Diameter: | 3 mm |
| D. Backing: | 9.23 mg/cm ² kapton |
| E. Cover: | 0.254 mm aluminized mylar |

Radioimpurities:

None detected

Method of Calibration:

This source was assayed using gamma ray spectrometry.

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|-----------------------------------|------------------------|
| Peak energy used for integration: | 661.7 keV |
| Branching ratio used: | 0.851 gammas per decay |

Uncertainty of Measurement:

| | |
|---|---------|
| A. Type A (random) uncertainty: | ± 0.3 % |
| B. Type B (systematic) uncertainty: | ± 3.0 % |
| C. Uncertainty in aliquot weighing: | ± 0.0 % |
| D. Total uncertainty at the 99% confidence level: | ± 3.0 % |

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- This source has a working life of 5 years.


Quality Control

15-Mar-02
Date Signed

IPL Ref. No.: 895-60