

CERTIFICATE OF CALIBRATION GAMMA STANDARD SOURCE

Radionuclide: Eu-152	Customer: IDAHO STATE UNIVERSITY
Half-life: 4933 ± 11 days	P.O. No.: 2224342
Catalog No.: GF-152	Reference Date: 1-Apr-02 12:00 PST
Source No.: 895-60-3	Contained Radioactivity: 107.1 μCi 3963 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:

Gd-153 = 1.42%; Eu-154 = 1.28% on 1 Apr 02

Method of Calibration:

This source was assayed using gamma ray spectrometry.

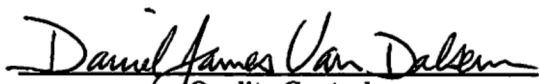
Peak energy used for integration:	344.3 keV
Branching ratio used:	0.266 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.9 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.1 %

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