

CERTIFICATE OF CALIBRATION
Standard Reference Source

SRS Number: 104467
Source Description: 5 mL Liquid in Flame Sealed Vial
Product Code: 8125
Customer: LLNS/LLNL
P.O. Number: B620882, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA). The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 31-October-2016 12:00 PM EST

| Isotope | Half-Life, d | Activity, Bq | Uncertainty | | | Calibration Method** |
|---------|--------------|--------------|-------------|-----------|-----------|----------------------|
| | | | $u_A, \%$ | $u_B, \%$ | $U, \%^*$ | |
| I-125 | 5.941E+01 | 7.413E+05 | 0.2 | 1.0 | 2.0 | 4π LS |

Uncertainty:** U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." *Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

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Comments:

4.99891 g 0.1 M NaOH + 0.006 M Na₂SO₃ solution with approximately 30 µg/g I carrier.

Impurities:

γ-impurities < 0.1%

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by:



M. C. Alfonso, Radiochemist

QC Approved by:



J. Lahr, Spectroscopist

Date: 31-OCT-16