

**CERTIFICATE OF CALIBRATION**  
Standard Reference Source

**SRS Number:** 108674  
**Source Description:** 5 mL Liquid in Flame Sealed Ampoule  
**Product Code:** 8125  
**Customer:** LLNS / LLNL  
**P.O. Number:** B627610, 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:** 28-February-2018      12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty			Calibration Method**
			$u_A, \%$	$u_B, \%$	$U, \%$ *	
I-125	5.941E+01	7.402E+05	0.2	2.1	4.3	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:**

5.00180 g of 0.1 M NaOH + 0.006 M Na<sub>2</sub>SO<sub>3</sub> 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: \_\_\_\_\_

  
Z. Dimitrova, Radiochemist

QC Approved by: \_\_\_\_\_

  
J. Lahr, Spectroscopist

Date: 28-FEB-18