Eckert & Ziegler
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CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

81576-28

I-131 5 mL Liquid in Flame Sealed Vial

Customer: LLNS/LLNL / For the U.S. DOE/NNSA
P.O. No.: B589207, Item 2

This standard radionuclide source was prepared gravimetrically from a master solution calibrated with an ionization chamber. The ionization chamber was calibrated by the National Physical Laboratory, Teddington, U.K., and is traceable to national standards. Radionuclide purity and calibration were checked with a germanium gamma spectrometer system. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
I-131	8.025E+00	2.292E+06	0.1	0.7	1.4	02/18/2010

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: γ-impurities < 0.1 %. 5.00965 g 0.1M NaOH + 0.006M Na2SO3 solution with approximately 30 μg/g I carrier.

Source Prepared by: M. I. Taskaeva, Radiochemist

QA Approved: J. D. McCorvey, QA Manager Alternate

Date: 2/18/10

ACCREDITED SOURCE CALIBRATION LABORATORY
HEALTH PHYSICS SOCIETY
FOUNDED 1956

Single Isotope Certificate, Rev 1 9/28/2009

ANA Form005 Rev. ---