

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92152,92222,92232

Unquenched Liquid Scintillation Set – BC 566321
15 mL Liquid in 20 mL Flame Sealed Liquid Scintillation Vial
(C-14, H-3, and Background)

Customer: Cabrera Services

P.O. No.: 13-0204, Item 1 **Product Code:** LSCBC566321

These standard radionuclide sources were prepared gravimetrically from calibrated master solutions. The master solutions were calibrated by liquid scintillation counting by Eckert & Ziegler Analytics. 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 assay date for these sources 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 2, July, 2007, 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.

Reference Date: 17-Apr-2013 12:00 PM EST

SRS Number	Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, (%)		
				u_A	u_B	U
92232 ¹	C-14	2.082E+06	1.691E+03	0.2	2.0	4.0
92222 ²	H-3	4.500E+03	1.715E+03	0.2	1.6	3.2
92152 ³	----	----	Background			----

***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%

Cocktail: Toluene Based Scintillator

¹C-14 labeled Toluene. ²H-3 labeled Toluene. ³Toluene based scintillator.

Expiration date: August 2016

Source Prepared By: M. I. Taskaeva
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QA Approved: J.D. McCorvey
J.D. McCorvey, Counting Room Manager

Date: 18 APR 13



End of Certificate