National Institute of Standards & Technology

Certificate

Standard Reference Material 4332C
Radioactivity Standard

Radionuclide	Americium-243
Source identification	4332C
Source description	Liquid in a 5-mL flame-sealed glass ampoule
Solution composition	Americium-243 in 1-molar nitric acid
Solution mass	Approximately 5 grams
Radioactivity concentration	122.87 Bq g^{-1}
Reference time	1200 EST July 11, 1990
Overall uncertainty	1.12 percent (1)*
Alpha-particle-emitting impurities (Activities at reference time)	^{241}Am: 0.21 ± 0.02 Bq g^{-1} (2)
Half life	7380 ± 40 years (3)
Measuring instrument	Liquid scintillation counter previously calibrated by the NIST "0.8π"α defined-solid-angle counter with scintillation detector

This standard reference material was prepared in the Center for Radiation Research, Ionizing Radiation Division, Radioactivity Group, Dale D. Hoppes, Group Leader.

Gaithersburg, MD
August 1990

William P. Reed, Acting Chief
Office of Standard Reference Materials

*Notes on back

NOTES

(1) The overall uncertainty was formed by taking three times the quadratic combination of standard deviations of the mean, or approximations thereof, for the following:

a) liquid scintillation measurements	0.05 percent
b) gravimetric measurements	0.05 percent
c) deadtime	0.05 percent
d) background	0.01 percent
e) detection efficiency	0.2 percent
f) count-rate-vs-energy extrapolation to zero energy	0.3 percent
g) impurities	0.05 percent

(2) An average value was derived from alpha-particle measurements performed by the National Institute of Standards and Technology and Oak Ridge National Laboratory, and a mass-spectrometric measurement by Oak Ridge National Laboratory.

(3) NCRP Report No. 58, 2nd Edition, February 1985, p. 507.

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