U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate

Standard Reference Material 4329

Radioactivity Standard

Radionuclide	Curium-243 (1)*
Source identification	4329
Source description	Liquid in a 5-mL, flame-sealed borosilicate-glass ampoule
Solution composition	Curium-243 in 1-molar nitric acid
Solution mass	5.156 ± 0.005 grams (2)
Reference time	1200 EST, June 13, 1984
Radioactivity concentration	69.50 Bq g^{-1}
Overall uncertainty	1.4 percent (3)
Alpha-particle-emitting impurities (Activity ratios at reference time)	$^{243}Am/^{243}Cm$: < 0.0008 (4) $^{244}Cm/^{243}Cm$: < 0.0008 (5)
Measuring instrument	NBS "0.8π" alpha and "0.1π" alpha defined-solid-angle counters with scintillation detectors
Half life	28.5 ± 0.2 years (6)

This Standard Reference Material was prepared in the Center for Radiation Research Nuclear Radiation Division, Radioactivity Group, Dale D. Hoppes, Group Leader.

Gaithersburg, MD 20899
March, 1985

Stanley D. Rasberry, Chief
Office of Standard Reference Material

*Notes on back

NOTES

(1) This material was supplied by Oak Ridge National Laboratory (ORNL) with funding provided by the U.S. Department of Energy. The method of production is described in:

a) L.D. Hunt and C.E. Bemis, Jr., Chem. Div. Ann. Progr. Rept., ORNL-4437, p. 37, Oak Ridge National Laboratory (1969).

b) A.E. Cameron, Actinides Review, 1, 299 (1969).

(2) The average of 12 individually weighed masses of solution. The uncertainty is the estimated standard deviation of the mean.

(3) The overall uncertainty is three times the value found from combining quadratically the standard deviations of the mean, or approximations thereof, of the following:

a)	16 alpha-particle measurements	0.12 percent
b)	gravimetric measurements	0.10 percent
c)	system live time	0.05 percent
d)	background	0.01 percent
e)	detection efficiency	0.25 percent
f)	count-rate-vs-energy extrapolation to zero energy	0.25 percent
g)	impurities	0.25 percent

(4) By gamma-ray spectrometric analyses at ORNL.

(5) By mass-spectrometric analyses at ORNL.

(6) Proposed Recommended List of Heavy Element Radionuclide Decay Data, International Nuclear Data Committee, INDC (NDS)-149/NE, December, 1983.

For further information contact J.M.R. Hutchinson at (301) 921-2396 or FTS-921-2396.