

# National Bureau of Standards

## Certificate of Analysis

### Standard Reference Material 988

#### Strontium-84 Spike Assay and Isotopic Solution Standard

This Standard Reference Material is certified for use as an assay and isotopic standard. SRM 988, Strontium-84 Spike, is a solution sealed in pure quartz ampoules. Each ampoule contains a nominal 10 grams of the solution, which is approximately 0.5N in  $\text{HNO}_3$ .

The isotopic composition and concentration of strontium in SRM 988 were determined using two mass spectrometers and two operators. The concentration was determined by comparison of ten Strontium-84 aliquots from five different ampoules with a series of solutions of SRM 987, Strontium Carbonate.

All isotopic measurements have been corrected for fractionation based on the pseudo-absolute scale of a "natural"  $^{86}\text{Sr}/^{88}\text{Sr}$  ratio of 0.1194.

#### Isotopic Composition

<u>Measured Ratios</u>	<u>Atom Fractions<sup>a</sup></u>
86/84 0.000589	84 = 0.99892
87/84 0.000098	86 = 0.00059 ± 0.00001
88/84 0.000386	87 = 0.00010 ± 0.00001
	88 = 0.00039 ± 0.00001

Atomic Weight = 83.9165

<sup>a</sup>Estimated error limits because of the magnitude of the measured ratio.

#### Strontium Concentration<sup>b</sup>

	<u>μmoles/g of Solution</u>	<u>μg/g of Solution</u>
Analyst 1	1.1906 ± 0.0004	99.91 ± 0.03
Analyst 2	1.1908 ± 0.0005	99.92 ± 0.04
Average	1.1907 ± 0.0005	99.92 ± 0.04

<sup>b</sup>Error limits are the 95% confidence limits for a single analysis.

(over)

For the analysis the following values were assumed from SRM 987:

<u>Ratios</u>	<u>Atom Fraction</u>
88/86 8.3752	84 = 0.005576
87/86 0.71014	86 = 0.098601
84/86 0.05655	87 = 0.070020
	88 = 0.825803

Atomic Weight = 87.6167

The material for this SRM was supplied by the ORNL Isotope Development Center, Oak Ridge, Tennessee.

The following members of the NBS Analytical Chemistry Division participated in the characterization of SRM 988:

Isotopic Measurements - I. L. Barnes and L. J. Moore  
Chemical Preparations - L. A. Machlan and J. R. Moody

The overall direction and coordination of the technical measurements leading to certification were under the chairmanship of W. R. Shields.

The technical and support aspects concerning the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W. P. Reed.

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J. Paul Cali, Chief  
Office of Standard Reference Materials