

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 981

Common Lead Isotopic Standard

Absolute Abundance Ratio, Lead-204/Lead-206	0.059042 ± 0.000037
Absolute Abundance Ratio, Lead-207/Lead-206	0.91464 ± 0.00033
Absolute Abundance Ratio, Lead-208/Lead-206	2.1681 ± 0.0008
Lead-204, atom percent	1.4255 ± 0.0012*
Lead-206, atom percent	24.1442 ± 0.0057
Lead-207, atom percent	22.0833 ± 0.0027
Lead-208, atom percent	52.3470 ± 0.0086

*Revised certificate issued to correct an arithmetic error in the atom percent calculation printed on the original certificate.

Standard Reference Material 981 was prepared from commercially available material. It has been purified to at least 99.9 + percent purity, and extruded into wire form. The atomic weight of the material is calculated to be 207.215 using the nuclidic masses 203.973044, 205.974468, 206.975903, and 207.976650.

Measurements were by triple filament solid-sample mass spectrometry. Mixtures of known $^{208}\text{Pb}/^{206}\text{Pb}$ ratio, prepared from high-purity separated isotope solution, were used as comparison standards. Overall limits of error are based on 95 percent confidence limits for the mean of the ratio measurements and on allowances for the known sources of possible systematic error. Details of the preparation and measurements are given by E. J. Catanzaro, T. J. Murphy, W. R. Shields, and E. L. Garner, J. Research NBS 72A, No. 3. 261 (1968).

Washington, D. C. 20234
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J. Paul Cali, Chief
Office of Standard Reference Materials