



Certificate of Analysis

Certified Reference Material CRM U150 (10mg)
Uranium (U3O8) Isotopic Standard, 15% U-235, 10 mg U

Table with 4 columns: Isotope (234U, 235U, 236U, 238U) and rows for Atom Percent, Uncertainty, and Weight Percent.

This Certified Reference Material (CRM) is primarily intended for the calibration of mass spectrometers used to perform uranium isotopic measurements. The specific purpose of this isotopic standard is for the determination of mass discrimination effects for uranium isotopes being measured under similar analytical conditions.

The indicated uncertainties for the isotopic composition of the CRM are 95% confidence intervals for a single determination. This term can be defined as an approximate two-sigma limit, where sigma is the standard deviation of the measurements data obtained from the material.

This CRM was originally issued in 1970 by the National Bureau of Standards (NBS) as Standard Reference Material (SRM) U-150. The measurements made at NBS leading to the certification were performed by E. L. Garner, L. A. Machlan, M.S. Richmond and W. R. Shields.

The 235U and 238U abundance values were determined at NBS, Union Carbide Nuclear Company, Oak Ridge, Tennessee, and Goodyear Corporation, Portsmouth, Ohio; all values were given equal weight in the calculation of the certified value.

The 234U and 236U abundances were determined at NBS by isotope dilution mass spectrometry using high-purity 233U as the spike. The 235U values obtained from Union Carbide and Goodyear Atomic are based upon direct 235U concentration determination by oxide dilution and UF6 analysis.

NOTE: NBS Special Publication 260-27 presents further details of the measurements made at NBS which provided the basis for the certification, and is available from the NBS Office of Standard Reference Materials

Expiration of Certificate: When stored in its original, unopened container, the certification of this material is valid indefinitely. The NBL PO will periodically monitor the materials in inventory and notify customers should degradation be detected.

Stability and Storage: This material should be stored in its original packaging under normal laboratory environmental conditions.

Minimum Sample Size: The NBL Program Office has validated that samples of 1 mg of oxide or larger are isotopically homogenous. The NBL Program Office recommends sampling of oxide of 1 mg or more for use of this material as an isotopic Certified Reference Material.