



NBL Program Office
U.S. Department of Energy



Certificate of Analysis
Certified Reference Materials C105A
Pitchblende Ore – Silica Mixture Uranium Standard

Uranium: $0.00102_3 \pm 0.00002_3$ Wt.%
($\alpha = 0.05$, $df = 28$)

*Radium (calculated): 3.52×10^{-10} Wt.%

This Certified Reference Material (CRM) C105A was prepared by milling and blending NBL CRM 6-A Pitchblende Ore (67.91 ± 0.05 Wt.% U_3O_8) with silica (99.9% SiO_2) to obtain a uniform mixture of desired uranium concentration. Characterization and certification analyses for uranium content were performed on ten (10) units selected from the packaged final product.

The certified value listed above is expressed in terms of 95% confidence limits, defined as $\bar{x} \pm \sigma \cdot t$, where \bar{x} is the pooled mean of the measurement data, σ is the pooled standard deviation of the mean, and t is the Student's t value for the indicated degrees of freedom (df) and at the 5% significance level (α).

REFERENCE METHODS OF ANALYSIS: Spectrophotometry verified with NBL Uranium Oxide (U_3O_8) and Fluorimetry verified with NBL CRM 112-A Uranium Metal.

*Calculation is based on the radium/uranium ratio of 3.44×10^{-7} g Ra/g U for NBL CRM 6-A Pitchblende Ore.