



Plutonium Calorimetric Assay

COURSE DESCRIPTION

- Principles and applications of heat-flow calorimeters for determining the thermal power emitted from plutonium
- High-resolution gamma-ray measurements for calculating isotopic composition and specific power
- Conversion of measured thermal power into an assay result
- Techniques to increase calorimeter throughput
- Development and application of heat standards and measurement control
- The course is composed of lectures that describe underlying theories followed by hands-on laboratory measurements on calorimetric assay techniques for plutonium assay.

NDA Concepts Covered:

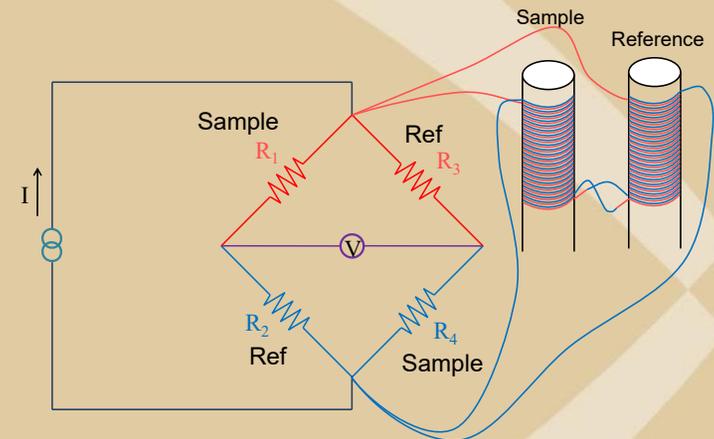
- ✓ Fundamental principles and applications of heat-flow calorimeters
- ✓ Operation of calorimeters
- ✓ Isotopic composition measurements for determination of specific power
- ✓ Calorimetry measurement control program
- ✓ Analysis of assay results.

NDA Equipment Covered: *Twin bridge Calorimeter, Wheatstone bridge sensor.*

$$\text{Mass (g)} = \frac{\text{Thermal Power (W)}}{P_{\text{eff}} \text{ (W/g)}}$$

Course Objective

To provide a comprehensive background in the theory and application of the calorimetric assay of plutonium bearing items.



Additional Information

Course Length: 3 days

Target Audience: Individuals that perform, manage, or supervise measurements involving calorimetry. Auditors, regulators, and policy makers may also benefit from attending this course.