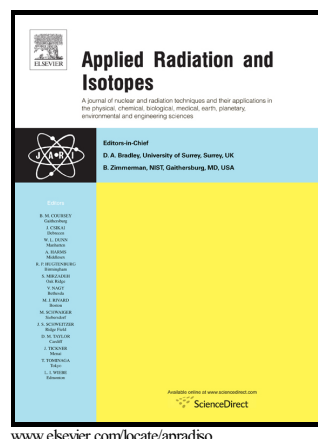


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# Measuring the Noble Metal and Iodine Composition of Extracted Noble Metal Phase from Spent Nuclear Fuel Using Instrumental Neutron Activation Analysis

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## Abstract

Masses of noble metal and iodine nuclides in the metallic noble metal phase extracted from spent fuel are measured using instrumental neutron activation analysis. Nuclide presence is predicted using fission yield analysis, and radionuclides are identified and the masses quantified using neutron activation analysis. The nuclide compositions of noble metal phase derived from two dissolution methods, UO<sub>2</sub> fuel dissolved in nitric acid and UO<sub>2</sub> fuel dissolved in ammonium-carbonate and hydrogen-peroxide solution, are compared.

## 1. Introduction

Augmentation of nuclear power production in the U.S. relies heavily on the management of spent nuclear fuel (SNF). At present, all SNF from U.S. power reactors is destined for on-site storage until long-term solutions are implemented. Research on the transport, storage, and reprocessing of SNF is ongoing. As burnup codes provide

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