A Quantitative Sequential Separation Method of ^{90}Sr, ^{241}Am and Pu Isotopes in Environmental Soil Samples Using an anion exchange and Sr-Spec Resin

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Abstract

This paper presents a quantitative method of sequential separation of ^{90}Sr, ^{241}Am and Pu nuclides in environmental soil samples with an anion exchange and Sr-Spec resin. The Pu isotopes were purified with an anion exchange resin. Strontium-90 was separated from other hinrance elements with Sr-Spec resin after oxalate co-precipitation. Americium-241 was purified from lanthanides with anion exchange resin after oxalate and iron co-precipitations. The measurement of α-emitters was carried out by α-spectrometry. Strontium-90 was measured by a low level β counter. The radiochemical procedure of ^{90}Sr, ^{241}Am and Pu nuclides investigated in this study has been validated by application to IAEA and SRM-Reference soils.