

Modeling of Physico-Chemical Characteristics of Concrete for Filling Trenches in Radioactive Waste Management

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Abstract : The leaching rate of ^{60}Co from spent mix bed (anion and cation) exchange resins in a cement-bentonite matrix has been studied. Transport phenomena involved in the leaching of a radioactive material from a cement-bentonite matrix are investigated using three methods based on theoretical equations. These are: the diffusion equation for a plane source, an equation for diffusion coupled to a first order equation and an empirical method employing a polynomial equation. The results presented in this paper are from a 25-year mortar and concrete testing project that will influence the design choices for radioactive waste packaging for a future Serbian radioactive waste disposal center.

Keywords : cement, concrete, immobilization, leaching, permeability, radioactivity, waste

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