

## **Aging Effects on the Kinetics of Cesium Desorption from Vermiculite And Contaminated Soil**

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Radioactive  $^{137}\text{Cs}$  is a worldwide environmental problem due to soil contamination from fallout and ground disposal of liquid radioactive wastes. Since  $^{137}\text{Cs}$  remains in the soil environment for many years as a result of its strong adsorption, diffusion into clay interlayers, and long half-life (33 years), it is important to determine how aging affects  $^{137}\text{Cs}$  desorption. This study uses a batch technique to measure 0.01 *M* Cs sorption kinetics over extended periods of time (from one to 90 days) followed by desorption with 0.001 *M* HCl and a H-saturated resin (which acts as a sink for desorbed  $^{137}\text{Cs}$ ) for periods ranging from one hour to one month. The materials tested are: a Ca-saturated vermiculite (“Zonolite” from Libby, MT) and four soils (“Bikini”, soil from the Bikini Atoll in the South Pacific; “Oak Ridge”, a sediment from Oak Ridge National Laboratory; “Savannah”, a sediment from Savannah River National Laboratory; and “Grassland”, a German soil).