

Concentration cesium and strontium from aqueous systems by adsorbents based on bentonite clay

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Abstract

Using intercalated montmorillonite (MM) for extracting cesium and strontium from aqueous solutions are studied. Partition coefficients between Cs and Sr solution and the adsorbent comprise $K_d = (2.5 \pm 0.2) \times 10^3$ ml/g. achievement of the adsorption equilibrium time should not exceed 10 minutes, which indicates the occurrence of the external diffusion process in kinetic mode.

Adsorption strontium reduced to monolayer formation in the pores of the adsorbent and can be described by the Langmuir equation. Extraction of cesium accompanied by multilayer adsorption. The static exchange capacity for Cs ions $SOECs \geq 1.7$ mmol/g, and the ion Sr $SOESr \geq 1.6$ mmol/g.

The experimental data can be used for the development of technological schemes of rehabilitation of natural water sources in the radiation-contaminated areas.