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化学

放射性核素Cs在被压实回填材料中的迁移和扩散预测

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摘要 目前，对于放射性核素在被压实回填材料中的迁移模拟主要是室内实验。针对这一问题，根据实验获得的数据和核素迁移机理，引入合理的核素迁移模型，模拟了数年后核素Cs在被压实回填材料中的扩散和迁移行为。讨论了时间、被压实回填材料中水流速、Cs的吸附分配系数和弥散系数对Cs在被压实回填材料中迁移和扩散的影响。初步研究表明：Cs在被压实回填材料中的迁移主要受水的流速、分配系数和弥散系数的影响。6 m厚的被压实回填材料足以1万年阻滞Cs从回填材料扩散到环境中。

关键词 Cs 回填材料 迁移 扩散 数学模型

分类号

Prediction of Radionuclide Cs Migration and Diffusion in Compacted Backfill Material

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Abstract Up to now the most of migration simulation of radionuclide in compacted backfill material was experimental in the lab. Against this problem, the long-term diffusion and migration of radionuclide Cs in compacted backfill material were simulated by using the migration of mathematic model with the experimental data and the migration mechanism of radionuclide. Effects of time, water velocity, distribution coefficient and dispersion coefficient on the migration and diffusion of Cs in compacted backfill material were also simulated. Preliminary research suggests that the migration of Cs in compacted backfill material is affected mainly by water velocity, distribution coefficient and dispersion coefficient. Compacted backfill material of 6 m thickness may be sufficient to prevent Cs from diffusion to environment in ten thousand years.

Key words Cs backfill material migration diffusion mathematic model

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