

Study of the transfer of metallic elements through sand/bentonite layers

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Abstract

Contamination of water resources, due either to the absence or the bad conception of waterproof barriers in controlled landfills, represents a major threat to public health. Previous studies have been carried out on the impact of landfill sites on water resources and to find solutions to improve prevention. For this purpose, and for effective installation of a landfill, passive security must be provided by a waterproof barrier, e.g. a clay material with a very low permeability ($< 10^{-9} \text{ m s}^{-1}$) and capable of retaining polluting elements diffusing through the ground. The main objective of our research is to study the adsorption behaviour of bentonite in the presence of metallic solutions as well as the diffusive behaviour through sand + bentonite mixture columns, by evaluating the concentration profiles estimated in time and space.

Keywords

- [clay](#),
- [landfills](#),
- [heavy metals](#),
- [permeability](#),
- [lixiviation tests](#),
- [diffusion](#)