Assessing the adsorption capability of a clay soil

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The "sanitary landfill" method is **the** method used world-wide for the proper disposal and management of solid wastes, including municipal solid wastes and toxic wastes. A key component in the "sanitary landfill" is the underlying clay liner which acts both as a physical barrier to impede or retard leachate migration, as well as a medium for the adsorption or retention of chemical or microbial pollutants. The suitability of a candidate clay soil that is to be considered for use as a clay liner depends on, among other factors, the adsorption capability of the soil.

This paper discusses two laboratory methods that are commonly used in the assessment of the adsorption capability of a clay soil, namely: the batch equilibrium method, and the leaching column test. The batch equilibrium method involves shaking a sample of the clay soil in a chemical solution (or leachate solution) and measuring the amount of pollutants adsorbed by the soil. The leaching column test involves passing a chemical solution (or leachate) through a compacted soil column, and monitoring the migration of the particular chemical species of interest as flow proceeds. Results from both methods can then be used to assess the adsorption capability of the clay soil.

Several examples are provided to illustrate the use of these two methods.

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