

low concentrations of phenol (0.1% by weight) in the cement matrix (after 28 days of curing) could be leached and exceed the regulatory limit of 14.4 ppm. Test results show that polyester polymer can be used effectively for solidifying/stabilizing phenolic waste very rapidly. A simple non-linear model has been developed to represent the phenol leachate from the cement matrix.

Solidification/stabilization of toxic metals — leaching, FTIR and silicon-29 solid-state NMR studies of lead, zinc, chromium and cadmium in portland cement and montmorillonite

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Portland cement samples doped with lead and zinc nitrate have been investigated using ^{29}Si solid-state NMR and Fourier-transform infrared spectroscopy. Results indicate that silicate polymerization is slightly enhanced with lead doping and retarded in the presence of zinc. Studies reveal that silicate polymerization occurs when the samples are exposed to acidic leaching media. The degree of cross-linking is directly proportional to the acidity of the leaching solution, being pronounced when pH 5 buffers are employed. In separate studies, the adsorption of the metals chromium, lead and cadmium from aqueous solution by montmorillonite clay was found to increase with addition of phosphates, sulfates and arsenates.

Sorption and degradation of organic vapors in unsaturated soil

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Abstract

The need to provide treatment for soils contaminated with hazardous ma-