and modeling of a contamination site. A two-dimensional test version of the operator splitting formulation has been completed. This prototype model divides the problem into the solution of the pressure field using a finite element based model and a solution for transported species using a finite difference approach. The model has been applied to several sets of data including a real reservoir permeability distribution and two hypothetical cases. Results in all instances were excellent. We are currently modeling a hydrocarbon contaminated aquifer which is undergoing microbial biorestoration at a tractor–trailer operations site. Future work will focus on the development of a three-dimensional modelling capability and application of this model to real field data.

Performance of solidified/stabilized inorganic hazardous waste substances in modified portland cement matrices

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Abstract

Immobilization of hazardous waste substances in portland cement matrices is considered a major solidification/stabilization method, particularly when the wastes are largely inorganic; however, the compound composition of portland cement is mainly designed and manufactured for construction applications. Therefore, it is necessary to tailor the compound compositions of portland cement according to the nature of the waste substances. The modifications improve both physical and chemical properties of the final products.

The present work reports the performance of several latex-modified portland cement matrices contaminated with Pb(II) nitrates. The TCLP test was used to evaluate the performance of the solidified products. Comparison of these results indicates a significant improvement in the treatment efficiency of the portland cement binder when it is modified with latex.
