

Lime stabilized Malaysian lateritic clay contaminated by heavy metals

Abstract :

This paper highlights the essential tests for assessing the suitability of lime as a binder for contaminated Malaysian remediation by reducing the leachability of contaminants. The contaminated soils can achieve a higher strength after lime solidification/stabilization process. However, contaminants in soils may interfere with the process of stabilizer hydration, and as a result lead to a more complicated strength development than conventional stabilized soils. For soils contaminated by different types of heavy metals, the lime stabilized products may have different strength properties since heavy metal in the soils would influence the extent of chemical fixation among lime-soil and contaminations mixtures. This paper presents an experimental study on the unconfined compressive strength of lime stabilized lateritic clay soils contaminated by copper and zinc. The control sample (lime stabilized soil without heavy metals) is also prepared for comparison purpose. The test results show that the presence of heavy metals in soils interferes with lime hydration process, which is directly reflected by the variation in the strength development of samples. It is found that the metal concentration, the stabilizer content, and the type of heavy metal are the main factors which affect the stabilizer hydration and strength.