

Study on electro-kinetic remediation of heavy metals in municipal solid waste incineration y ash with a three-dimensional electrode

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Abstract

Fly ash from incinerated municipal solid waste is a source of secondary pollutants (Cu, Zn, Pb and Cd). The inappropriate management of y ash leads to the contamination of soil and ground water. This paper is based on the electro-kinetic removal of heavy metals from municipal solid waste incinerated y ash by using a three-dimensional electrode in orthogonal single and multi-factor experiments to obtain the optimal experimental conditions by varying the leaching toxicity removal rate for the heavy metals in the groups. The optimal dimensions (6 X 6 mm) of the particle electrodes to achieve high removal rates for heavy metals are found by using various measurements in single-factor orthogonal experiments. In addition, the multi-factor orthogonal experiment is based on three factors: (a) the particle electrode ratio, (b) the voltage gradient and (c) the repair time, while keeping the optimum specification (6 X 6 mm) for particle electrodes constant. The result showed that a high removal rate for heavy metals was obtained by applying a voltage gradient of 9 V for 5 days (repair time) and a 5% dosing ratio.

Keyword : Water, Soil