

عنوان مقاله:

Optimization of pyrene removal from contaminated soil by electrokinetic remediation process

محل انتشار:

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خلاصه مقاله:

The electrokinetic remediation process has been intensively investigated by many researchers as a novel technique to remove different pollutants from soil. The process utilizes a direct-current electric field to soils to insert some process such as electroosmosis and electrolytic migration. In the present study, the removal of pyrene as a model of polycyclic aromatic hydrocarbons (PAHs) were optimized using response surface methodology (RSM) based on central composite design (CCD). The electrokinetic experiment was performed using an electrokinetic setup that includes an electric power supply, a plexiglass soil box and two square stainless steel electrodes. In the optimum condition, electrode type, moisture and voltage were determined as stainless steel, 30% and 12 volt, respectively. Pyrene removal efficiency in optimum condition estimated 80.05 %. Analysis of variance (ANOVA) exhibited a reasonable correlation coefficient between the predicted and experimental values ($R^2=0.95$). These results showed that electrokinetic remediation process could be applied as an efficient technique for pyrene removal

کلمات کلیدی:

Electrokinetic; Pyrene; Soil; Remediation; Optimization

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