



## **Electrokinetic Remediation of Petroleum Hydrocarbons Spiked Soils**

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**Abstract:** In the presented study, remediation studies were conducted to determine the effectiveness of electrokinetic method on the treatment of natural soil contaminated with petroleum hydrocarbons, in laboratory scale reactors. Electrokinetic remediation of agricultural soil with an initial TPHs (Total Petroleum Hydrocarbons) concentration of 10000 ppm was investigated under 20 V or 40 V direct current by using NaOH and acetic acid as electrolyte solution, treatment efficiencies were observed according to the distance from the anode chamber and the applied electrical potential. The effect level of electrokinetic remediation on PAHs (Polycyclic Aromatic Hydrocarbons), which were announced by Environmental Protection Agency (EPA) as in high toxicity group and present in engine oil that was used as contaminant, was also included in the framework of the study. It was observed that high treatment efficiencies for PAHs and TPHs were achieved according to the distance from the anode and the electrical potential applied to the system. The achievement of the electrolytic solution on the treatment TPHs can be given as decreasing order as follows according to the average data of the sets studied: Acetic acid > NaOH. The highest PAH treatment efficiency was detected in set operated under 40 V of DC with 0.5 M of NaOH as high as 94.46%.  
**Keywords:** *Electrokinetic remediation; Soil; Total Petroleum Hydrocarbons; Polycyclic Aromatic Hydrocarbons*

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