Electrokinetic Treatment of Polluted Soil with Petroleum Coupled to an Advanced Oxidation Process for Remediation of Its Effluent

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doi: 10.20964/2017.02.18

Received: 11 September 2016 / *Accepted:* 29 November 2016 / *Published:* 30 December 2016

In this work, the treatment of soil polluted with petroleum in laboratory scale was studied using electrokinetic soil remediation (ESR) technology followed by boron doped diamond electrolysis (BDD-electrolysis) for washing liquid treatment. Results evidently show that ESR is an efficient treatment removing the petrochemical compounds from soil. Depollution of the effluents by BDD-electrolysis is related to the pre-treatment of liquid as well as the higher removal of petroleum from soil. BDD-electrolysis favors the complete elimination of organic matter from liquid produced after ESR. However, the ions in the effluent play an important role during the BDD-electrolysis because strong oxidants are electrochemically produced at diamond surface, improving the efficiency of the process.

Keywords: petroleum, electrokinetic, coupled treatments, electrolysis, and diamond electrode.

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