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Advances in Electrokinetic Remediation for the Removal of Organic Contaminants in Soils

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1. Introduction

Soil contamination is associated to industrial activities, mining exploitations and waste dumping. It is considered a serious problem since it affects not only the environment, living organisms and human health, but also the economic activities associated with the use of soil [1]. The risks associated with soil contamination and soil remediation are important points in the agenda of politicians, technicians and scientific community. The present legislation establishes a legal frame to protect the soil from potentially contaminant activities; however, the present situation of soil contamination is the result of bad practices in the past, especially related to bad waste management [2-3].

Soil contamination affects living organisms in the subsurface but also affects the plants that accumulate contaminants as they grow. Thus, contaminants enter the food chain with a potential impact in public health [4]. On the other hand, contaminants can be washed out the soil by rain and groundwater, resulting in the dissemination of the contamination. This process is not desirable because the area affected by the contaminants is bigger and bigger and the possible remediation is more difficult and costly as the affected area grows [5]. Therefore, soil contamination is a serious problem that requires a rapid solution in order to prevent more environmental damages. Prevention is the best “technology” to save our soils from the contamination. A strict management of the wastes and good environmental practices associated to industrial activities, mining, transportation and dumping management are required to prevent the contamination of the environment. However, many sites have been identified as contaminated sites. The European Union, USA, Canada, Japan and South Korea made a lot of efforts in recent years to identify the contaminated sites in each country. The new legislation, especially in the European Union, forces the administration to identify the

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