

**APPLICATION OF MODIFIED DIATOMITE-ACTIVATED PERSULFATE OXIDATION
FOR THE DEGRADATION OF PAHS IN CONTAMINATED SOIL**

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Soil contamination with petroleum is of great concern to both petrochemical companies and environmental agencies. Petroleum consists mainly of alkanes and aromatic hydrocarbons. Due to their persistence to natural degradation and potential damage to human health and ecosystems, PAHs have been classified as priority pollutants by the US Environmental Protection Agency (EPA). Chemical oxidation technology is a potent soil treatment option that can effectively eliminate an extensive range of contaminants. The aim of this experimental investigation was to assess the feasibility of utilizing chemical oxidation with sodium persulfate as an oxidant to degrade adsorbed polycyclic aromatic hydrocarbons; comparing a new activator material with the traditional methods of activation for this oxidant. For this purpose several bench scale laboratory tests were performed to treat sand contaminated with phenanthrene and anthracene, with the following methods: Activated sodium persulfate (chelated iron and alkaline) and lastly sodium persulfate with modified diatomite (new activator method). Results this study indicated that in comparing with the traditional activation method to persulfate radical and with the new activator, the synthesized material displays significant catalytic activity for the oxidation of phenanthrene and anthracene, using sodium persulfate as the oxidant.

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