

## عنوان مقاله:

Enhanced Adsorption of Aromatic Hydrocarbon-contaminated Aquifer Using Granular Nano Zero-valent Iron

## محل انتشار:

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## خلاصه مقاله:

Aromatic hydrocarbons are toxic pollutants that enter into environment through various industries. These pollutants are carcinogenic and cause genetic mutations. There are various solutions, including biological methods, extraction, and electrocoagulation. This research aims to synthesize the nano zero-valent iron (nZVI) from the ferrous waste and granules of nZVI by the chemical combination of nZVI with polyvinyl alcohol (PVA). The performance of these two adsorbents was evaluated to degradation of phenol from an aqueous solution. The physical properties of the synthesized nanoparticles were determined using SEM analysis. Effect of pH, contact time, contaminant concentration, and adsorbent dosage on the removal efficiency were studied. The results showed that the maximum removal efficiency of phenol by nZVI and GnZVI was 78, 57.83 %, respectively, at the condition of pH 3, 60 minutes initial concentration of 8 ppm and adsorbent dosage of 2.5 g. The removal efficiency of phenol in acidic conditions and laboratory temperature by adsorption of nZVI is higher than GnZVI with a difference in removal efficiency of approximately 20 %. Equilibrium isotherms were analyzed by Langmuir and Freundlich equations and it was observed .that these experiments followed Freundlich model

## کلمات کلیدی:

Adsorbent, Aromatic hydrocarbons, Granules of nZVI, Nano Zero Valent Iron, Phenol, Removal

## لینک ثابت مقاله در پایگاه سیویلیکا:

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