



Contribution ID: 811

Type: **Poster (+) Presentation**

'Cocktail effects' of co-existing hydrocarbon on heavy metal remediation

Thursday, 3 June 2021 14:40 (1 hour)

Pollution of soil-water resources due to industrial, domestic and agricultural activities is a growing concern. The polluted soil-water systems contain a mixture of organics, heavy metals, hydrocarbon oils, emerging compounds etc. These 'pollutant cocktails' exhibit interesting interactions by altering chemical activity of individual pollutants in the system. Heavy metals and petroleum hydrocarbons are two commonly found soil-water pollutants. Surface adsorption using nano-zerovalent iron (nZVI) is a popular remediation method for heavy metal removal in soil-water; however, its application in the presence of other contaminants is seldom studied. In the present study, we investigated the effect of co-existing petroleum hydrocarbon (toluene) on the removal of chromium using nZVI. The results represent the antagonizing effect of toluene on Cr (VI) removal and a reduced overall removal efficiency. The changing experimental conditions (pH and initial concentration) also showed significant effects on the removal efficiency. The efficiency was highest for lower pH conditions (pH = 3) and at lower initial Cr (VI) concentration (25 mg/L). The results, however, were different in the co-presence of toluene hydrocarbon. This study demonstrated important results for understanding the remediation challenges associated with mixed-contaminated soil-water systems.

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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Track Classification: (MS18) Innovative Methods for Characterization, Monitoring, and In-Situ Remediation of Contaminated Soils and Aquifers