

## عنوان مقاله:

The Use of Acid-Washed Iron/Aluminum Mixture in Permeable Reactive Barrier for the Elimination of Different Heavy Metal Ions From Water

## محل انتشار:

مهندسی بهداشت محیط, دوره 4, شماره 2 (سال: 1396)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

Mohammad Taghi Samadi

Ghorban Asgari

Ali Reza Rahmani

Zhila Ghavami

## خلاصه مقاله:

In this experimental study, the performance of a fixed bed column containing a mixture of iron and aluminum modified with acid, as a reaction bed, was evaluated for the removal of heavy metals of cadmium, nickel, and copper. The tests were carried out by feeding the columns with aqueous solutions at the concentration of 100 mg/L using four iron/aluminum granular mixtures at various volume ratios (100/0, 50/50, 75/25, 25/75 and 0/100), and pH (3, 5, 7) for a total of 28 column tests. Results showed that metal ion removal was mainly accomplished via redox reactions that initiated the precipitation of mineral phases. At pH 5 and flow rate of 1 mL/min, the removal efficiency of cadmium, nickel, and copper at the 50/50 ratio of modified iron and aluminum was obtained higher than 99% and this removal efficiency could be kept about 50 hours. It seems that the column with the volume ratio of 75/25 of iron and aluminum mixture was the most efficient column for removing the heavy metals with the most suitable iron content and also high hydraulic performance due to the suitable aluminum content. It is therefore seen that the mixture of iron and aluminum can be used as an environmentally and economically viable remediation technology for the subsequent prevention of groundwater contamination.

## کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1912172>

