Removal of Arsenic from Water by Iron Oxide Coated Sponge

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Abstract

The heavy metal such as Asenic (As) is known as carcinogenic substance and it can cause the contamination of groundwater. In this study, the iron oxide coated sponge (IOCSp) was used to investigate the removal efficiency of arsenic (As) in synthetic water and groundwater. The experiment was performed in lab scale column. The synthetic water and groundwater was pumped to IOCSp column at the different weight and bed volume of IOCSp. The remval efficiency of Arsenic (As) in the effluent was measured by Flame Atomic Absorption Spectrophotometer (FAAs) and observed using scanning electron microscope (SEM). The result showed that IOCSp can remove efficiently As (III) and As (V) from synthetic water and groundwater. The results of a basket type column study also indicated that IOCSp could be an appropriate technology for on-site treatment. Different reagents were tested for the solidification of wasted IOCSp, the optimal combination of reagents was found in this study. The results of this study showed that IOCSp could be an alternative technology for the removal of arsenic removal from water.

Key words: Arsenic , Iron oxide coated sponge(IOCPs) , Adsorption isotherm , Scanning electron microscope(SEM)