

Effects of Silicic Acid on Arsenite Leaching from Spent Calcium-Based Arsenic Adsorbents

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The spent adsorbents after arsenic removal in arsenic contaminated water itself contain a large amount of arsenic. If they are discarded without appropriate treatment, there is a concern that secondary arsenic pollution may occur due to arsenic leaching from them. In our previous studies, it was suggested silicic acid greatly affects leaching behavior of arsenate from the spent adsorbents. In this study, in order to examine the effects of silicic acid on arsenite leaching from the spent adsorbents, leaching tests with silicic acid solution and 2 kinds of spent calcium-based adsorbent (CaO and Ca(OH)₂) were carried out. This study revealed that when the initial silicic acid concentration in solution is high, the leaching of arsenite is also inhibited as in the case of arsenate. This was inferred that when the silicic acid component in the solution reacted with the calcium component eluted from the spent adsorbents to form the calcium silicate species, the arsenite component leached from the spent adsorbents was taken into the products.

Keywords: Arsenite Leaching, Spent Adsorbent, Calcium Oxide, Calcium Hydroxide, Silicic Acid