The 2022 World Congress on
Advances in Civil, Environmental, & Materials Research (ACEM22)
16-19, August, 2022, GECE, Seoul, Korea

Preparation of low-cost functional ceramic membrane using waste cast iron and application to remove selenium from aqueous solution

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ABSTRACT

In this study, a low-cost functional ceramic membrane (LFCM) based on waste cast iron was fabricated and its application to remove selenium from aqueous solution was investigated. Adsorption experiments were conducted in batch systems to examine the effect of selenium species (selenite (Se(IV)) and selenate (Se(VI)) and sintering (with or without). To evaluate the Se(IV) removal ability of the LFCM, artificial wastewater was filtered at a constant pressure of 0.1 bar, and samples were collected every 2 hr (Fig. 1). Se(IV) removal capacity was decreased compared to the results of batch experiments.

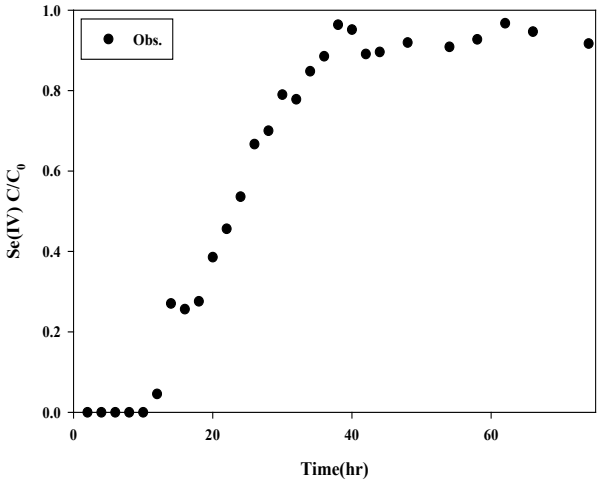

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Fig. 1 Removal of Se(IV) using functional ceramic membrane