



Competitive Heavy Metal Removal using Adsorbing Agents for Acid Mine Drainage

Jaeyoung Choi (1), Won-Hyun Ji (2), Jung-Seok Yang (1), Ju-Young Lee (1), Young-Tae Park (1), Jeong-Giv Um (3), and Ik Woo (4)

(1) Korea Institute of Science and Technology (KIST), Gangneung Institute, Gangneung, South Korea(fiam3620@hotmail.com), (2) Institute of Mine Reclamation Technology, Seoul, South Korea, (3) University, Pusan, South Korea Pukyung National, (4) Kunsan National University, Kunsan, South Korea

This study investigates As, Ni, Zn, Cd, and Pb removal onto limestone, starfish, black shale, and concrete from wastewater. Natural materials or waste products with a high capacity for heavy metals can be obtained and employed of with little cost. For investigating the neutralization capacity, the change in pH, Eh, and EC as a function of time was quantified. Of the adsorbing agents, concrete showed that the high neutralization efficiency for AMD and maintained the pH value above 11. The adsorption of heavy metals by the samples was influenced by compositions of adsorbing agents. The experimental results of desorption revealed that when the adsorption or precipitation occurs, there was no significant releasing from all adsorbing agents. In this study, the results suggest that concrete can be used successfully in the treatment of acid mine drainages with mixed metal-contaminated wastes.