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Neutralization of acid mine drainage and CO_2 capture using waste concretes

Kyoung-Won Min and Woo-Ram Kim

Kangwon National University, Energy and Resources Engineering, Chuncheon, Korea, Republic of (kwmin@kangwon.ac.kr)

This study deals with applicability of waste concrete for neutralization of acid mine drainage and CO_2 sequestration. Ground waste concrete powders of under 0.075mm were added to artificial mine drainage of 500 mL, until their pH reached about 11. After the pH of each solution stabilized through continuous agitation, CO_2 gas was injected with various rates until the pH decreased to 8.3. After termination of CO_2 injection, the pH of the solutions stabilized in the range of 6.3 to 8.2, furthermore, both pH and metal concentrations of the treated solutions are tolerable in terms of the effluent standard. In this experimental study of the AMD neutralization-carbonation using waste concrete, it was confirmed that AMD neutralization, metal control and CO_2 capture can be conducted by waste concrete. And it is known that the CO_2 immobilization efficiency through carbonation should be dependent on waste concrete inputs controlled by the AMD property.