Acid mine drainage treatment with dunite

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\textbf{ABSTRACT}

This paper reports the efficiency of dunite as an alternative alkalinity generating material and adsorbent for the passive treatment of acid mine drainage (AMD). The acid neutralization capacity (ANC) of dunite has been investigated by contacting dunite (powder) samples with laboratory (acidic) solution and AMD samples and it has been shown that the ANC of dunite is 1 mmol/g dunite and is basically ascribed to the MgO content of the rock material. On the other hand contacting 1 g/l and 10 g/l dunite with AMD samples, results in increasing pH and significant removal of various metal ions (e.g. Cr(III), Co(II), Ni(II), Pb(II)) contained in AMD. The latter is basically attributed to the precipitation of metal ions due to the pH increase in the AMD solutions.

\textit{Keywords}: AMD; Dunite; Acid-base properties; Heavy metals; Removal

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