

Treatment of Acid Mine Drainage with Metallurgical Slag

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Abstract : Acid mine drainage (AMD) refers to the production of acidified water from abandoned mines and active mines as well. The reason behind the generation of this kind of acidified water is the oxidation of pyrites present in the rocks in and around mining areas. Thiobacillus ferrooxidans, which is a sulfur oxidizing bacteria, helps in the oxidation process. AMD is extremely acidic in nature, (pH 2-3) with high concentration of several trace and heavy metals such as Fe, Al, Zn, Mn, Cu and Co and anions such as chloride and sulfate. AMD has several detrimental effect on aquatic organism and environment. It can directly or indirectly contaminate the ground water and surface water as well. The present study considered the treatment of AMD with metallurgical slag, which is a waste material. Slag helped to enhance the pH of AMD to 8.62 from 1.5 with 99% removal of trace metals such as Fe, Al, Mn, Cu and Co. Metallurgical slag was proven as efficient neutralizing material for the treatment of AMD.

Keywords : acid mine drainage, Heavy metals, metallurgical slag, Neutralization

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