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DETOXIFICATION OF CYANIDE IN GOLD PROCESSING WASTEWATER BY HYDROGEN PEROXIDE

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Abstract:

Utilizing cyanide compounds in mining and chemical industry is one of the most important environmental issues due to the acute toxic properties of many cyanide compounds to humans and aquatic life. Cyanide tends to react readily with most other chemical elements, producing a wide variety of toxic, cyanide related compounds. This research was aimed at investigating a feasible and economical technique for the detoxification of cyanide from the tailing effluent of Muteh gold mine in Isfahan, Iran. In this research cyanide detoxification was achieved through the oxidation of cyanide by hydrogen peroxide using various hydrogen peroxide solutions at pH levels between 7-13 and temperatures between 12-65 °C using copper sulfate as a catalyst. The optimum pH and dose of hydrogen peroxide for complete cyanide removal in the presence of 30 mg/L copper sulfate as a catalyst were determined as 9.7 and 9.98 g/L, respectively. At high temperatures > 35°C, cyanide was completely removed perfectly at constant pH = 9.7 which was mainly due to cyanide evaporation in the form of HCN.

Keywords:

[Cyanide destruction](#) , [copper sulfate](#) , [optimum pH](#) , [cyanide](#)

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