

Reductive leaching of manganese oxide ores from Pyrolusite using Sodium metabisulfite as reductant

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Abstract

Extraction of manganese from manganese dioxide ores was investigated using Sodium metabisulfite as a reducing agent in dilute sulfuric acid medium. In recent years, the utilization of low-grade manganese oxide ores has increased much attention due to the shortage of high-grade manganese ore resources. Manganese oxide ores from Pyrolusite ore were leached with Sodium metabisulfite as reductant in dilute sulfuric acid solution. The effects of mass ratio of Sodium metabisulfite to ore, reduction temperature, reduction time, liquid to solid ratio (L/S ratio), pH on the leaching rates of Mn were discussed. The leaching rates of 86.6% for Mn were obtained under the following optimized conditions: Sodium metabisulfite to manganese oxide ore mass ratio of 1.25:1, pH =1 , liquid-to-solid ratio of 5:1, leaching temperature of 85 °C, reduction time of 1.5 h.

Keywords: Manganese, Optimization, reduction, Pyrolusite, Sodium metabisulfite

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