

Effect and mechanism of Molar Ratio of $\text{C}_2\text{O}_4^{2-}$ to Fe^{3+} on preparation of $\text{Fe-MnC}_2\text{O}_4$ using iron-rich pyrolusite

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Abstract

Ferric and manganese oxalate complex can be obtained from iron-rich pyrolusite by oxalic acid leaching and ultraviolet radiation. Molar ratio of $\text{C}_2\text{O}_4^{2-}$ to Fe^{3+} in leaching solution was found to be a vital parameter decided the leaching and precipitation efficiencies of Mn and Fe in leaching and radiation processes. Even at the optimal leaching concentration of experiments, the Fe leaching rate reached 94.24%, while the leaching rate of Mn was only 69.04%. When a two-stage countercurrent leaching process was carried out, both Fe and Mn leaching rates could reach 97.10% and nearly 100%, respectively, realizing efficient leaching of Fe and Mn from pyrolusite.

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