



The leaching of MgCO_3 and CaCO_3 from Mount Isa zinc concentrate

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Abstract

Hydrometallurgical production of zinc from concentrates is generally carried out by H_2SO_4 leaching. For the smooth operation of this process, some harmful components must be removed from the leach solution before the electrolysis stage; MgO is one of these compounds. Zinc concentrate samples from the Mount Isa mines were used in leaching tests. Leaching tests with an aqueous solution of H_2SO_4 and SO_2 gas were carried out at various temperatures, pH levels and leaching durations. While duration and the pH value of the solution were effective parameters in H_2SO_4 leaching, temperature and pH were more effective in SO_2 leaching for the removal of MgCO_3 and CaCO_3 . Removal of MgCO_3 and CaCO_3 was generally achieved at low pH values. The results show that SO_2 gas can be a good alternative to sulfuric acid in the leaching of MgCO_3 and CaCO_3 .

Key words: Zinc concentrate, Leaching, SO_2 gas, CaCO_3 , MgCO_3 , pH