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Investigation of Copper and Iron Recovery from Copper Ore by High Pressure Leaching

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The products from the pressure oxidation leaching of a carbonaceous sulphide ore were compared under the range of reaction conditions for copper and iron recovery. Experiments were conducted under temperature ranges of 100-180° C at different sulfuric acid concentrations (0- 1.2 mol dm^{-3}). The aim of the study was to improve recovery of copper and iron, and discuss practical issues associated with competing process for leaching of carbonaceous sulphide ores. The ore contains chalcopyrite, bornite, dolomite, muscovite, quartz, mica and calcite. It is shown that at least 90% copper could be extracted using sulfuric acid in the high pressure leaching process. Observations employed by XRD analysis on solid residue indicated that iron precipitates form a number of different phases of hematite and jarosite depending on parameters studied.

Keywords : Copper, Iron, High Pressure Leaching