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Copper Upgrading and Recovery Process from Mine Tailing of Bor Region, Serbia Using Flotation

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A process for concentration of Cu from a Cu mine tailing by flotation has been investigated in this study. The flotation studies were carried out under varying conditions of pH (3.5~12), flotation time (0~20 minutes) and sulfurizing reagent (0, 1000 g/t) using two different pH regulators (NaOH, Ca(OH)₂). The results showed that the grade of Cu in froth concentrate was increased from 0.24 mass% to 0.81 mass% with the enrichment ratio of 4, whereas the Cu recovery reached 60% under the conditions (pH 10, sulfurizing reagent: 1000 g/t, collector of PAX: 100 g/t, frother of MIBC: 200 g/t and flotation time: 5 minutes). At the condition, the grade of Al and Fe were reached to 0.6 mass% and 6.6 mass% from 3.45 mass% and 3.51 mass%, respectively.

Key Words : Copper, Flotation, Mine tailing, Chalcopyrite, Flotation reagent