Synergetic effect of the Sodium Hydrosulfide and Ammonium Sulfate as Activators in the Flotation of Copper-cobalt Bearing Oxide Minerals from the Kamoya Mineralization in the Democratic Republic of Congo (DRC).

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Abstract : The current study investigated the synergetic effect of two activators, mainly sodium hydrosulfide (NaHS) and ammonium sulfate $(NH_4)_2SO_4$, as sulphidizers in the flotation of oxide minerals. A series of flotation tests were conducted on copper-cobalt samples originating from the Kamoyaopen pitin the DRCat an adjusted pH value of 9.5. The results revealed that in the presence of NaHS (5000g/t), an increase in the recovery values of both metals to a maximum of 87% copper and 78.1% cobalt could be achieved. However, the addition of $(NH4)_2SO4$ to theNaHS-containing pulp had a negative effect on the recoveries, shifting it from 87 to 49.1% for copper and from78.1 to 49.2% forcobalt. The recovery trend for the two metals waskept below 50% with an increase in the concentration of $(NH4)_2SO4$. A satisfactory result was obtained at a NaHS - $(NH4)_2SO_4$ concentration ratio of 1/1, which delivered 89.5% Cu recovery and 79.2% Co recovery.

Keywords : ammonium sulphate, sodium hydrosulphide, sulphidizer, activator

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