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The study on the extraction and recovery of Au from scrap of the used computer using chloride solvent

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Recently, due to the realization of environmental problems of cyanide, it is a worldwide quest to find viable alternatives. One of the alternatives is a chloride solvent(chlorine-hypochlorite acid) with an appropriate oxidizing agent. The rate of dissolution of Au by chloride solvent is much faster than that by cyanide. Also, due to presence of chloride ions, there is no passivation of gold surfaces during chlorination. The objective of this work was to investigate the effect of Au extraction efficiency under various experimental conditions(pulp density, chlorine-hypochlorite ratio and concentration of NaCl) from scrap of the used computer by chloride solvent. In addition, the recovery experiment was conducted to examine of the precipitation efficiency of Au under various metabisulfite concentration from extracted solution. In an EDS analysis, valuable metals such as Cu, Sn, Sb, Al, Ni, Pb and Au were observed in scrap of the used computer. The result of extraction experiment showed that the highest extraction rate was obtained under 1% of pulp density with a chlorine-hypochlorite ratio of 2:1, and a concentration of NaCl at 2M. The highest Au recovery(precipitation) rate was observed the addition of sodium metabisulfite at 2M concentration. Under these conditions, chlorine-hypochlorite could effectively Au extraction from scrap of the used computer sections and the additive reagent using sodium metabisulfite could easily precipitate the Au from the chlorine-hypochlorite solution.