

In this work, the recovery of mercury from spent fluorescent lamps by oxidative leaching followed by cementation process was studied. Two different reactive solutions (NaOCl/NaCl and KI/I₂) during oxidative leaching was investigated whereas at the cementation process, metallic powders of iron (Fe), copper (Cu) and zinc (Zn) were used as reducing agents to capture mercury in solid phase. Mercury could be transferred to the solution with an efficiency of 96% from the spent lamp samples through the NaOCl/NaCl reagent. The optimal leaching conditions were determined as 2 h contact time, 120 rpm agitation speed, pH 7.5 and 50°C of temperature. The reducing agent, Zn provided 99% of the cementation. The optimal process conditions were observed to be as 5 min. contact time, pH 1 and 5 g L⁻¹ of reducing agent concentration. This combined approach appears to be technically effective for the recovery of mercury from spent fluorescent lamps.