

HEAVY METAL EXTRACTION AND ELECTROSEPARATION
FROM WASTEWATER BY ACIDIC SOLUTIONS

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ABSTRACT

Heavy metals contaminated waste water sludge is classified as hazardous solid waste(1). For this reason it needs to be properly treated to prevent releasing heavy metals to the environment.

This study contains two parts, an extraction and a separation.

The sludge was treated in a batch reactor by sulfuric acid to extract the contained heavy metals(2). The effects of sulfuric acid concentration and solid to liquid ratio on the heavy metal removal efficiencies were investigated. The experimental results showed that the total and individual heavy metal removal efficiencies increased with increasing sulfuric acid concentration, but decreased with increasing solid to liquid ratio. For 5g/L solid to liquid ratio, more than 99,9% of heavy metals can be removed from the sludge by treating with 0,5 M sulfuric acid in 2h.

In the second part a separation, of metals extracted by sulfuric acid from the sludge, is carried out by plating on steel substrate(3). The electrodeposition is performed in two different media: acid and basic media. A comparative study of the two plating media was studied.

References;

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