

عنوان مقاله:

D2EHPA-Sulfuric Acid System for Simultaneous Extraction and Recovery of Nickel Ions via Supported Liquid Membrane Process

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خلاصه مقاله:

This research addresses the extraction and recovery of nickel ions from real electroplating wastewater using SLM process. The process involves three main phase system which are feed, organic and stripping phase. The feed phase containing the nickel electroplating wastewater whereas the organic phase containing the liquid membrane which was immobilized in the membrane support. The liquid membrane was prepared by dissolving certain concentration of D2EHPA in kerosene which acts as a carrier and diluent, respectively. Meanwhile, the membrane support employed was commercial polypropylene membrane with features of 0.1 mm thickness, 70% porosity and 0.10 μm effective pore size. On the other hand, the stripping phase consisting of sulfuric acid (H_2SO_4) solution which acted as a stripping agent. Parameters such as carrier and stripping agent concentration and feed phase flowrate were examined to obtain the best condition for the extraction and recovery efficiency of nickel. The results revealed that about 44 and 55% of nickel ions have been successfully extracted and recovered, respectively at the best conditions of 1.0 M of D2EHPA, 3.0 M of H_2SO_4 and 70 ml/min flowrate of feed phase.

کلمات کلیدی:

Extraction, Recovery, nickel, Wastewater, supported liquid membrane

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