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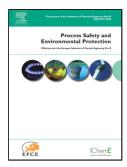
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ACCEPTED MANUSCRIPT

Selective Separation of Copper and Nickel by Membrane Extraction Using Hydrophilic Nanoporous Ion-exchange Barrier Membranes

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Highlights

- Highly selective separation of Cu²⁺/Ni²⁺was achieved using membrane extraction
- \bullet Hydrophilic nanoporous membrane (PES/SPPESK membrane) was used for Cu^{2+}/Ni^{2+} separation
- Higher copper flux was observed in sandwiched membrane extraction due to the coupling of stripping
- The membrane showed high stability in the organic extractant

Abstract

Hydrophilic nanoporous ion exchange barrier membrane, based on polyethersulfone (PES) /sulfonated polyphenylether sulfone ketone (SPPESK), was utilized for the pH dependent separation of copper and nickel ionswith a commercial extractant, LIX84-I. The extraction and stripping performance of the membrane was demonstrated in a single stage membrane contactor as well as in an integrated extraction/stripping system. By adjusting the feed pH to 2.9, a complete separation of copper and nickel was achieved using the membrane contactors, where a copper flux of 1.10*10⁻⁸ mol/cm².s was observed. In an extraction/stripping integrated

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