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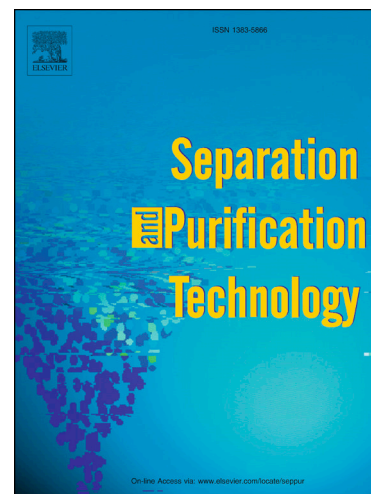
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Electrochemical Separation and Extraction of Cobalt and Tungsten from Cemented Scrap

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Highlights

- High cobalt content cemented carbide (WC-15Co) was used as anode to separate and extract cobalt and tungsten in NaCl–KCl molten salt;
- The process of dissolution of cemented carbide anode under different electrolysis conditions were systematically expounded;
- The optimum separation process of cobalt and tungsten is obtained by experiment;
- Cobalt powders of 100 nm in diameter, tungsten powders of below 200 nm in diameter and a porous structure of carbon were obtained.

Abstract

Molten salt electrolysis was utilized for the separation of cobalt and tungsten from cemented carbide scrap in the NaCl–KCl melt at 1023 K (750 °C). The WC-15 Co sacrificial anode was dissolved to cobalt and tungsten ions and consequently discharged on the cathode to deposit cobalt and tungsten during electrolysis. The carbon remained at the anode with a porous structure. The oxidation potential of the cobalt and the tungsten carbide in the cemented carbide were analyzed through the electrochemical

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