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Electrochemical reduction of Eu (III) for the recovery of Eu from rare earth materials solution using turbulent-induced cell

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Abstract

Europium is one of the most important rare earth (RE) elements. It is widely used as a component of cathode ray tubes, with screen coated with red phosphor, as phosphorescent pigments, and in laser optics. It can also keep used as neutron-absorbing material. In aqueous solutions, RE principally exists as a stable trivalt.tit species. Separation of Eu(III) from other RE(III) is problematic because their chemical properties are similar. Reduction of Eu(III) to its divalent state enables its subsequent separation from RE(III) by means of Eu(II) sulfate precipitation. Chemical reduction using zinc or zinc amalgam is the traditional method, and other techniques based on electrochemical reduction. Electrochemical reduction of Eu(III) does not give rise to Zn(II) impurity unlike chemical reduction and also proceeds faster than chemical reduction. Therefore, the feasibility of Eu(III) electro reduction was investigated using turbulent-induced cell.

Biography

Kyeong Woo Chung has completed his PhD at the age of 31 years from Yonsei University and had worked for Hyundai Motors Group. He is the senior researcher of KIGAM. He has published many papers in reputed journals and has been serving as an editorial board member of Journal of Korea Institute of Resource Recycling.