Abstract

Electrochemical properties of \([\text{Mo}_3\text{O}_2\text{(O}_2\text{CCH}_3)_6\text{(H}_2\text{O})(\text{CF}_3\text{SO}_2\text{H})_2]\) and \([\text{Cr}_2\text{Mo}(\text{u}_2\text{-CH}_3\text{COO})_6(\text{u}_3\text{-O})(\text{H}_2\text{O})_3][\text{CF}_3\text{SO}_3]\) in 1-ethyl-3-methylimidazolium bis(pentafluoroethanesulfonyl)-imide ionic liquid was investigated. Cyclic voltammograms using a Platinum electrode indicated deposition had occurred for the \([\text{Mo}_3\text{O}_2\text{(O}_2\text{CCH}_3)_6\text{(H}_2\text{O})(\text{CF}_3\text{SO}_2\text{H})_2]\) metal cluster but had not for the polynuclear complex \([\text{Cr}_2\text{Mo}(\text{u}_2\text{-CH}_3\text{COO})_6(\text{u}_3\text{-O})(\text{H}_2\text{O})_3][\text{CF}_3\text{SO}_3]\). Constant potential electrolysis of \(-1.23\ \text{V}\) using a platinum foil electrode was performed. Scanning electron microscopy in combination with energy dispersion spectroscopy confirmed that deposition had occurred.