Electrochemical Impedance Spectroscopy of Anodic Passive Film on Alloy 600 at Room Temperature

Sihyoung Oh, Il Soon Hwang

Seoul National University
San 56-1 Shinlim-dong, Gwanak-ku
Seoul, Korea 151-742

Abstract

Electronic structure of the metal/passive film/solution system was modeled based on the Point Defect Model and the work of Armstrong et al and its characteristics was investigated by potentiodynamic polarization and Electrochemical Impedance Spectroscopy(EIS) measurement for a commercial alloy 600 at room temperature.

The modeling of metal/passive film/solution system showed the system could be described by well developed equivalent circuit. From EIS measurement of the passive film on Alloy 600 diffusivity of oxygen vacancies was estimated to 2.0724 x 10-14 cm2/sec.