

염화이온 함유용액내에서 순수한 알루미늄의
아노딕 용해에 미치는 수산화이온의 영향

Effects of OH⁻ Ion on Anodic Dissolution
of Pure Aluminum in Cl⁻ Containing Solution

이 우 진*, 변 수 일
Woo-Jin Lee* and Su-Il Pyun

Department of Materials Science and Engineering,
Korea Advanced Institute of Science and Technology,
Daejeon 305-701, Korea

The effects of OH⁻ ion on the anodic dissolution of pure aluminum have been investigated in Cl⁻ containing solution as a function of applied potential by using potentiodynamic polarization experiment and a. c. impedance spectroscopy. The anodic current density was observed on potentiodynamic polarization curves to increase below the pitting potential, while it appeared to decrease with increasing OH⁻ concentration above the pitting potential. From the a. c. impedance measurements, the oxide film resistance was found to be lowered with increasing OH⁻ concentration below the pitting potential, while it increased with increasing OH⁻ concentration above the pitting potential. These results were discussed in terms of competitive adsorption between Cl⁻ and OH⁻ and formation of resistive salt films on the surface.

References

1. E. Mccafferty, Corros. Sci., 37(3) (1995) 481.
2. S. Gudic, J. Radosevic and M. Kliskic, J. Appl. Electrochem., 26 (1996) 1027.
3. Y.-S. Kim, S.-I. Pyun, S.-M Moon and J.-D. Kim, Corros. Sci., 38(2) (1996) 329.
4. S.-I. Pyun, S.-M. Moon, S.-H. Ahn, and S.-S Kim, submitted to Corrosion for publication (1997).