

**예민화 처리된 316L 스테인레스 강의 염소이온함유 용액에서
마모전극 실험과 교류 임피던스 측정법을 통한 공식에 대한 연구**

**A Study on the Pitting Corrosion of Sensitized
316L Stainless Steel in Cl⁻-Ion Containing Solution by Using
Abrading Electrode Technique and Ac-Impedance Spectroscopy**

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The pitting corrosion of sensitized 316L stainless steel in 1000 ppm NaCl solution was investigated as a function of sensitization time by using abrading electrode technique and ac-impedance spectroscopy. The specimens were sensitized at 700°C for various durations (0, 1, 8, 24 and 96 h) and the degree of sensitization was assessed by using electrochemical potentiokinetic reactivation (EPR) test. From the results of abrading electrode experiment, it was shown that the repassivation rate of the sensitized specimen decreased with increasing sensitization time. This suggests that the passivating oxide film on sensitized specimen became more sensitive to pitting corrosion with increasing sensitization time, which was ascribed to the increase in the area of Cr-depleted region due to the precipitation of chromium carbide. The resistance and capacitance of the passivating oxide film were determined by analysing measured ac-impedance results based upon the electrical equivalent circuit. The determined values were discussed in view of the passivity of oxide film on the Cr-depleted region of sensitized 316L stainless steel.

References

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