

## عنوان مقاله:

Electrochemical Characterization of a Martensitic Stainless Steel

## محل انتشار:

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## خلاصه مقاله:

This paper focused on the characterization of electrochemical behavior of a martensitic stainless steel in the acidic solutions. For this purpose, electrochemical parameters were derived from potentiodynamic polarization, Mott Schottky analysis and electrochemical impedance spectroscopy (EIS) techniques. The potentiodynamic polarization results showed that corrosion current density of AISI ۴۲۰ stainless steel was decreased with the decrease in the concentration of solution. EIS studies also showed that as concentration was decreased, the measured value of polarization resistance was increased. This trend was due to the decrease in the corrosion current density, which corresponded to potentiodynamic polarization curves. Mott Schottky analysis revealed that passive films behaved as n-type and p-type semiconductors at potentials below and above the flat band potential, respectively. Also, Mott Schottky analysis indicated that the donor and acceptor densities were increased with solution concentration.

## کلمات کلیدی:

Martensitic stainless steel, Passive film, Mott-Schottky

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