AC Impedance Spectroscopy Analysis of the Corrosion Behavior of Reinforced Concrete in Chloride Solution

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The degradation of a reinforced concrete structure will occur with corrosion activation, which is caused by the steel rebar depassivation as a result of chloride penetration into the structure. Herein, the reinforced concrete corrosion process in a chloride solution was analyzed using AC impedance spectroscopy. The activation of the corrosion is associated with a significant impedance response decline in the capacitive part, as highlighted through multielementary analyses, SEM observations and the low-frequency region of impedance spectra.

Keywords: Impedance spectroscopy; Corrosion; Reinforced concrete; Chloride

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