Mechanism of Cathodic Protection to Minimize Corrosion Caused by Chloride in Reinforcement Concrete

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Abstract : The main objective of this case study is to integrate the advantages of cathodic protection technologies in order to lessen chloride-induced corrosion in reinforced concrete. This research employs potentiodynamic polarisation, impedance spectroscopy (EIS), and surface characteristics. The results showed how effectively the new cathodic control strategy is preventing corrosion of the concrete iron rods. Over time, the protective system becomes more reliable and effective. The potentials of the zinc electrode persist still more negative after 30 days, implying that the zinc electrode can maintain powerful electrocatalytic behavior for a long period of time. As per the electrochemical impedance spectroscopy (EIS), using the CP technique reduces the rate of corrosion of rebar iron in cementitious materials over time.

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Keywords : cathodic protection, corrosion, reinforced concrete, chloride

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