Failure Mechanism of Pure Epoxy Coating in Near-Neutral Solution Focusing on Coating/Metal Interfaces

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Electrochemical impedance spectroscopy (EIS) can provide a rapid and convenient method for evaluating the coatings' anti-corrosion performance, especially for analyzing the evolution of water diffusion. However, due to the coating/metal interfaces' limitation, the electrochemical reaction at interfaces is still not elucidated. Therefore, focusing on coating/metal interfaces, this paper investigates the coating failure mechanism on the coated X80-matrix with pure DGEBA coatings and the formation process of Fe₃O₄ at interfaces.

Keywords: Epoxy coating; X80-matrix; Near-neutral; Fe₃O₄; Cathodic protection

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