Short Communication

Effect of *Acinetobacter Sp.* on Corrosion Behavior of 10MnNiCrCu Steel in Simulated Marine Environment

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Metal materials are susceptible to corrosion and microbiologically influenced corrosion(MIC) is very common in marine environment, which refers to a kind of electrochemical corrosion induced by the bacteria and their metabolic activities. In this study, electrochemical methods and scanning electron microscopy(SEM) were used to study the corrosion behavior of 10MnNiCrCu steel influenced by *Acinetobacter sp.* in a simulated marine environment. Electrochemical measurement results showed that the capacitance arc radius and charge transfer resistance of 10MnNiCrCu steel in *Acinetobacter* system were larger than those in sterile system, and the corrosion current density was lower, indicating a better corrosion resistance in the presence of *Acinetobacter*. The corrosion morphology observation showed that a protective biofilm/corrosion product film formed on the surface of the 10MnNiCrCu steel, which hindered the charge transfer at the interface between the metal and the solution, thereby inhibiting the corrosion. However, during the corrosion process, the partial detachment of the film led to the formation of a galvanic cell and accelerated the corrosion to a certain extent.

Keywords: *Acinetobacter*; Biofilm; Microbiologically influenced corrosion(MIC); 10MnNiCrCu steel

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