

Synergistic Effect Between Sulfate-reducing Bacteria and *Pseudomonas Aeruginosa* on Corrosion Behavior of Q235 Steel

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Microbial community in nature is a whole in which the multiple species interact and restrict each other, leading to the metal corrosion as a synergistic result of microorganisms. In this paper, the corrosion behavior of Q235 steel in the culture media containing pure sulfate-reducing bacteria, *Pseudomonas aeruginosa* and their mixed cultures were analyzed by electrochemical methods and stereoscopic microscope. The results showed that the steel were subjected to corrosion to different degrees after immersion in the three cultures and with different characteristics. The corrosion of Q235 steel was the most severe in the pure SRB-containing culture, and then followed by that in pure PAO-containing culture. The corrosion process of Q235 steel in the mixed cultures was more complicated. The corrosion was alleviated compared to that in pure strain system, indicating that the coexistence of mixed strains might change the effect on biocorrosion process.

Keywords: Microbiologically influenced corrosion (MIC); *Pseudomonas aeruginosa*; Sulfate-reducing bacteria; Bacterial synergism

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