Short Communication

Effect of solid-solution temperature on microstructure of incoloy825 alloy and its corrosion behavior in a polluted marine environment

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Effects of solid-solution temperature on microstructure and its corrosion behavior of incoloy825 alloy in a polluted marine environment were investigated by electrochemical tests and periodic wet-dry cycle test. The corrosion resistance of alloy sample improves with the rise of solid-solution temperature. The corrosion law of the alloy is closely related with different microstructures. The increase in grain size and the amount of Ti(C,N) precipitates can decrease the corrosion degree. The electrochemical parameters of R_f , R_{ct} and i_p indicate that the passive films formed on the samples with different microstructures have different protective property. All samples mainly exhibit the feather of localized corrosion, and the degree of localized corrosion significantly reduces with an increase in the solid-solution temperature.

Keywords: Solid-solution temperature; Corrosion behavior; Microstructure; Localized corrosion

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