Short Communication

Effects of Nanosized Nb Carbide Precipitates on the Corrosion Behavior of High-Strength Low-Alloy Steel in Simulated Seawater

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Nb is usually utilized in high-strength low-alloy (HSLA) steels as a strengthening and toughening microalloying element. HSLA steels with different Nb contents, or different amounts of precipitates were chosen to study the effects of Nb and Nb carbide precipitates on the corrosion behavior of HSLA steel in simulated seawater respectively. Microstructural and electrochemical investigations revealed that Nb enhances the corrosion resistance of HSLA steel due to the homogeneous microstructure resulted from NbC precipitation in steel. Moreover, although as a cathodic phase, the nano-sized Nb carbide precipitates have no deteriorating effect on the corrosion behavior of HSLA steel in simulated seawater.

Keywords: NbC precipitate; corrosion; HSLA steel; simulated seawater

FULL TEXT

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