Study on Q245 Steel fatigue crack growth behaviors at high temperature

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Q245 steel was once widely used in the pressure vessel industry.At present, the high temperature fatigue performance of Q245 steel was tested and analyzed. According to the relevant standards, the pre-crack specimens were tested at 25℃and400℃respectively. The a-N curves, the $da/dN-\Delta K$ curves and the Paris formula of Q245 steelat both room temperature(25℃) and high temperature(400℃) were obtained. Finally,the high temperature fatigue fracture analysis was done.The fatigue crack growth occurredalong the grain at high temperature. A large number of acicular oxideappearin the fracture surface and the fatigue striations could notbe observed at high temperature.

Keywords: High temperature; Fatigue crack;Fatigue crack growth threshold

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