2、Atmospheric Corrosion

Study on Corrosion Behavior of Carbon Steel in Simulating Guangzhou Marine Atmospheric Environment

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Abstract Using the Mollier Diagram to analyze the environment of coastal cities Shantou, Jiangmen, and Zhanjiang in Guangdong Province, indoor corrosion acceleration tests including wet heat tests, salt spray tests, and drying tests were designed for these locations based on the principle of energy equivalence. Four cycles of corrosion tests were conducted using Q235 carbon steel in the three corrosion acceleration tests designed above.The corrosion rate of Q235 carbon steel in the above three regions was studied using the weight loss method, and the surface corrosion microstructure of Q235 carbon steel was observed using SEM. Using Keyence's 3D confocal imaging to record changes in corrosion pits on metal surfaces. The results showed that with the extension of experimental time, the corrosion weight loss of Q235 carbon steel followed the power function corrosion characteristics, and the corrosion rate of Q235 carbon steel was in the order of Zhanjiang>Shantou>Jiangmen in the above three regions. In the accelerated corrosion test of simulated marine atmospheric environment, Q235B carbon steel is mainly subjected to uniform corrosion, and the microstructure shows two stages of corrosion pit formation and corrosion pit smoothing. With the extension of the test period, the two stages alternate.

Keywords Marine atmospheric environment，Corrosion，Guangdong province，Q235 carbon steel

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