Effect of pH value in alkaline simulated soil solution on pitting and crevice corrosion of Q345 steel and Q235 steel

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Abstract ： The corrosion behavior of Q345 steel and Q235 steel in simulated soil solution was studied by corrosion immersion experiment. The corrosion experiment period was 1 year, and the factor affecting the corrosion was soil solution pH. Corrosion morphology (whether pitting occurs or not) at different pH was observed through corrosion immersion experiment, the corrosion rate was calculated, and the influence of pH value on pitting and crevice corrosion of Q345 steel and Q235 steel in soil environment was comprehensively analyzed. The experiment found that in pH10, 11 and 12 solutions, Q235 steel and Q345 steel showed pitting corrosion, and as pH increased, The average pitting depth increases. In the pH7-13 range, Q235 steel is more sensitive to crack corrosion than Q345 steel. Q345 steel experienced crack corrosion in solution of pH12, but no crack corrosion occurred in the other 5 pH conditions. Q235 steel has gap corrosion in the pH8.5-12 range, while no gap corrosion occurs at pH7 and pH13.

Keywords ： pH value, soil solution, Q345 steel, Q235 steel, pitting corrosion, crevice corrosion

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