

Study on CLSCC of Austenitic Stainless Steel in Refinery and Petrochemical

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Abstract CLSCC of austenitic stainless steel is a typical type of corrosion in refinery and petrochemical industry, it is one of the high-risk hazards for the safe and stable operation of the units. Here This report introduces three CLSCC cases of austenitic stainless steel equipment and pipeline failure were introduced. The critical stress values for SCC of 304 stainless steel in different states at different chloride ion concentrations were investigated in the laboratory. The results show that the stress corrosion sensitivity of 304 stainless steel varies in different states, and the stress values at which stress corrosion begins to occur are different at different chloride concentrations. For sensitized 304 stainless steel, cracks begin to initiate near the top of the U-shaped ring (280-320MPa) at a chloride ion concentration of 0.005%. As the concentration of chloride ions increases, the crack length continues to grow, and crack initiation and development gradually appear at positions away from the arc top.