

Corrosion Behavior of Induced Stress Duplex Stainless Steel in Chloride Environment

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Abstract : Use of Duplex stainless steel has become predominant in applications where excellent corrosion resistance is of utmost importance. Corrosion behavior of duplex stainless steel induced with varying stress in a chloride media were studied. Characterization of as received 2205 duplex stainless steels were carried out to reveal its structure and properties tensile sample produced from duplex stainless steel was initially subjected to tensile test to obtain the yield strength. Stresses obtained by various percentages (20, 40, 60 and 80%) of the yield strength was induced in DSS samples. Corrosion tests were carried out in magnesium chloride solution at room temperature. Morphologies of cracks observed with optical and scanning electron microscope showed that samples induced with higher stress had its austenite and ferrite grains affected by pitting.

Keywords : duplex stainless steel, hardness, nanoceramics, spark plasma sintering

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