The Influence of FSW Parameters on the Corrosion Resistance of Duplex Stainless Steel

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In this study, the influence of friction stir welding (FSW) parameters (such as tool rotational speed and welding speed) on the corrosion behavior of duplex stainless steel in 3.5%NaCl solution was investigated. Corrosion resistance was evaluated by potentiostatic polarization tests at ambient temperature. The results showed that by controlling and optimizing welding parameters such as tool rotational speed and welding speed, a microstructure with approximately equal amounts of ferrite and austenite can be achieved. Also, in optimal welding conditions, the presence of harmful phases such as sigma phase reached its minimum value. As a result, by controlling the microstructure and welding parameters, the highest corrosion resistance was obtained.

Biography

Dr. Mohammad Yousefieh is now a faculty member of materials & metallurgical engineering at Semnan University, Iran. He is working in the fields of welding, NDT, modelling and simulation in materials science and engineering, advanced materials, nano-structured materials, severe plastic deformation (SPD), additive manufacturing and surface engineering. He received his Ph.D. from Iran University of Science and Technology (IUST).

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