

Effect of Ultrasonic Vibration on the Dilution, Mechanical, and Metallurgical Properties in Cladding of 308 on Mild Steel

Authors : Sandeep Singh Sandhu, Karanvir Singh Ghuman, Parminder Singh Saini

Abstract : The aim of the present investigation was to study the effect of ultrasonic vibration on the cladding of the AISI 308 on the mild steel plates using the shielded metal arc welding (SMAW). Ultrasonic vibrations were applied to molten austenitic stainless steel during the welding process. Due to acoustically induced cavitations and streaming there is a complete mixture of the clad metal and the base metal. It was revealed that cladding of AISI 308 over mild steel along with ultrasonic vibrations result in uniform and finer grain structures. The effect of the vibration on the dilution, mechanical properties and metallographic studies were also studied. It was found that the welding done using the ultrasonic vibration has the less dilution and CVN value for the vibrated sample was also high.

Keywords : surfacing, ultrasonic vibrations, mechanical properties, shielded metal arc welding

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