World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:9, No:10, 2015

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

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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
Conference Title : ICMSE 2015 : International Conference on Materials Science and Engineering
Conference Location : London, United Kingdom
Conference Dates : October 23-24, 2015

Open Science Index, Materials and Metallurgical Engineering Vol:9, No:10, 2015 publications.waset.org/abstracts/33132.pdf