

Effect of Rotation Speed on Microstructure and Microhardness of AA7039 Rods Joined by Friction Welding

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Abstract : The main objective of this investigation was to apply friction welding for joining of AA7039 rods produced by powder metallurgy. Friction welding joints were carried out using a rotational friction welding machine. Friction welds were obtained under different rotational speeds between (2700 and 2900 rpm). The friction pressure of 10 MPa and friction time of 30 s was kept constant. The cross sections of joints were observed by optical microscopy. The microstructures were analyzed using scanning electron microscope/energy dispersive X-ray spectroscopy. The Vickers micro hardness measurement of the interface was evaluated using a micro hardness testing machine. Finally the results obtained were compared and discussed.

Keywords : Aluminum alloy, powder metallurgy, friction welding, microstructure

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