

Effects of Au Coated Ni Interlayer on Dissimilar Resistance Spot Welding of Al to Mg

Abstract

Resistance spot welds are examined in which aluminum 5754 alloy is joined to AZ31 magnesium alloy using an Au-coated Ni interlayer between the sheets. The influence of welding parameters on the tensile shear strength, interfacial microstructure, interlayer composition and fracture morphology has been investigated. It was found that an Au-coated Ni interlayer may be used to prevent the formation of Al and Mg based brittle intermetallic compounds, while providing joint strengths which can exceed those of welds with bare Ni interlayer and without an interlayer.