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Residual stresses of a magnesium alloy (AZ31) welded by the friction stir welding processes.

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Abstract: Abstract. The objective of this study was to evaluate the residual stresses of FSW welding magnesium alloys (AZ31). The results show that the FSW processes lead to the formation of several distinct zones with differing mechanical properties. The residual stresses evolution have been explained by the heterogeneous modifications of the microstructure particularly a marked decrease in the grain size, a high modification of the crystallographic texture and the different anisotropic properties resulting from plasticity induced by the FSW process.

Keywords : AZ31 magnesium alloy, Friction Stir Welding, residual stresses