

# The Effects of Friction Stir Welding Parameters on the Characteristics of Banded Structure for Aluminum Alloys

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## Abstract

Since the invention of the friction stir welding, several studies have been conducted to understand the influence of process parameters on the microstructural, thermal and mechanical characteristics to improve the weld quality. Banded structures better known under the name of "onion rings" are one of phenomena that appear in the microstructure during this process. The welding parameters leading to their appearance as well as their effect on the quality of the joint are still subject to much research with different conclusions. In this context, the objective of this research work is to determine various characteristics of the 'onion rings' and correlate them to processing conditions.

**Keywords:** Friction stir welding; onion rings; microstructure; shear punch test.