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ABSTRACT

Need for low weight and high performance structural materials have revolutionized the technology and had led to the emergence of new processes and methodologies. Frictions stir processing (FSP), based on principle of friction stir welding, is an emerging solid state metal working process. This technique causes intense plastic deformation and high strain rates in the processed material resulting in precise control of the microstructure through material mixing and densification. FSP process has been successfully used for achieving significant grain refinement and enhancement of surface properties.

Present work is focused on the study of behavior of Aluminium cast alloy (Al-6063) with processed by friction stir processing technique. Samples of FSPed aluminium were examined and their microstructures, microhardness, Rockwell hardnesss, impact strength were studied and compared with base metal Al-6063.

Hardness tester is employed to evaluate the interfacial bonding between the particles and matrix by indenting the hardness with the constant load and constant time. Impact test is employed to know the Impact Strength of samples against the Impact of Hammer.