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Influence of stir casting parameters on particle distribution in metal matrix composites using stir casting process

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Particle Reinforced Metal Matrix Composites are generally utilized for various mechanical applications. The main objective of this study is on obtaining uniform particle distribution in metal matrix composites using the stir casting method. The significant part of this work is the experimental investigation of the stir casting technique in a crucible and the effect of stir casting parameter on uniform distribution of particles. The main challenge facing this project is the enhancement of the distribution of particles in molten metal. Silicon Carbide (SiC) and Aluminum alloy (Al-8011) have been proposed as reinforcement and matrix materials respectively. The effect of various parameters such as holding time, blade angle, impeller position and volume concentration for two different viscosity levels

(1.24mPa-s and 1.04mPa-s) have been investigated. Composite microstructure has been characterized using Optical Microscope and Scanning Electron Microscope (SEM) in order to find the particle distribution in the composite. The mechanical behavior of the MMC has been assessed based on optimized stir casting parameter for uniform particle distribution.

Biography

M Saravana Kumar has completed his M.E (Master of Engineering) at the age of 24 years from Anna University, Tamil Nadu, India. He is perusing his Ph.D in Anna University, Tamil Nadu, India. He is working as an Assistant professor in Mount Zion College of Engineering and Technology, Tamil Nadu, India.

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