Abstract Details

Title: Mechanical and Metallurgical Characterization of AA6063 Metal Matrix Composites

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Abstract: Metal Matrix Composites (MMC's) play a vital role in the modern Automotive and Aerospace industries owing to their superior strength to weight ratio and high temperature resistance. Aluminum-silicon carbide (Al/SiC) MMC's is gradually becoming very important materials in the manufacturing industry due to their superior properties such as light weight, low density, high hardness, high temperature and superior wear and corrosive resistance etc. In this study Aluminum (Al-6063)/SiC Silicon Carbide reinforced particles MMC's are fabricated by stir casting technique. The MMC's rectangular plates are produced with varying the reinforced particles by weight fraction ranging from 0%, 5%, 10%, and 15%. The average reinforced particle size of SiC is 400mesh. The stirring process was carried out at 700rpm by SS304 Impeller for 20min. The microstructure and mechanical properties are investigated on prepared specimens of MMC's. It was observed that the hardness and tensile strength both are increased with increasing of reinforced particle weight fraction.

Keywords: AA6063, stir casting, SiC, MMC's and weight fraction.