

Abstract

Mahmoud A. El-Sayed

Effect of reinforcement particle size and weight fraction on the mechanical properties of SiC Particle Reinforced Al Metal Matrix Composites.

The production of engineering materials that possess low density and distinguished mechanical properties has been one of the most stimulating issues in both academic and industry in the last three decades, which caused a shift in research from monolithic to composite materials. For this reason aluminium matrix composites were widely manufactured and used in many aerospace and automobile industries. In this work, the effect of different processing parameters such as particle size and percentage of reinforcement on the tensile properties of Al-10Sb/SiC composite was investigated. The results showed a significant improvement in the yield and ultimate tensile strengths of the composite with increasing the SiC content and/or decreasing the particle size of the reinforcement. On the other hand the composite exhibited impaired ductility compared with the unreinforced Al alloy.