

## **Effect of modifier on mechanical properties of aluminium silicon carbide (Al-SiC) composites**

### **ABSTRACT**

The silicon carbide particle reinforced aluminum matrix composites are expected to have many applications in aerospace, aircraft, automobile and electronic industries. Aluminium Silicon Carbide (Al-SiC) is also used for Advanced Microelectronic Packages. In this study, effect of different weight percentage of strontium on microstructure and mechanical properties of Al-SiC composite and Al-12Si (LM6) was investigated. In this research, scanning electron microscope equipped with EDS was used to define how modifier effect on microstructure. To fabricate Al-SiC composite, 10 wt% silicon carbide and different percentages (0.02, 0.5) Wt % of Al-10Sr was added to Al-11.6Si (LM6) by using vortex method for mixing the particles. The influence of adding different amount of Al-10Sr (0.01, 0.02, 0.5) Wt% on mechanical behavior of aluminum was also examined. The results found that UTS for aluminum increased by adding SiC and Sr. It was observed that the tensile for the composite did not increase dramatically. It was concluded the weak interface between particles and matrix, decreased the UTS. On the other hand strong interface between particles or fibers in the matrix showed high stiffness and strength but typically a low resistance to fracture.

**Keyword:** AL-SiC composite; Stir casting; Sand casting; Modifier; LM6