

## Studies on tensile properties of titanium carbide (TiC) particulates composites

### ABSTRACT

The aim of this study is to determine the tensile properties of titanium carbide (TiC) particulate reinforced with aluminium alloy 11.8% silicon (LM6) alloy composite. In this experimental study, TiC particulates reinforced with LM6 composite were manufactured by sand and permanent metallic mould methods. Tensile properties of these composite materials were investigated by different weight percentages, 0%, 5%, 10%, 15% and 20%wt. The tensile tests were conducted to determine tensile strength and modulus young to investigate the effects of reinforce materials on weight percentages. The outcome of the investigations reveals that the tensile strength is enhanced from 0wt% to 10wt% of TiC and start to decrease after the addition of 10wt% of TiC. Good bonding and wettability between the composites ranging from 0%wt. to 10%wt. of TiC influence the close distribution of TiC particles in the LM6 alloy matrix. The addition of 10%wt. to 20%wt. of TiC in LM6 alloy matrix cause the lower resistance and load-bearing capacity and the particle are no longer isolated with the LM6 alloy matrix causing the worse value of tensile strength.

**Keyword:** Casting; Metal-matrix composites; Tensile properties; TiC particulates; Weight percentages