

## **Effect of quartz-silicon dioxide particulate on tensile properties of aluminium alloy cast composites**

### **ABSTRACT**

This paper describes an experimental investigation of the tensile properties of quartz-silicon dioxide particulate reinforced LM6 aluminium alloy composite. In this experimental, quartz-silicon dioxide particulate reinforced LM6 composite were fabricated by carbon dioxide sand moulding process with variation of the particulate content on percentage of weight. Tensile tests were conducted to determine tensile strength and modulus of elasticity followed by fracture surface analysis using scanning electron microscope to characterize the morphological aspects of the test samples after tensile testing. The results show that the tensile strength of the composites decreased with increasing of quartz particulate content. In addition, this research article is well featured by the particulate-matrix bonding and interface studies which have been conducted to understand the processed composite materials mechanical behaviour. It was well supported by the fractographs taken using the scanning electron microscope (SEM). The composition of SiO<sub>2</sub> particulate in composite was increased as shown in EDX Spectrum and Fractograph.

**Keyword:** Cast composites; LM6; MMC; Quartz-silicon dioxide strength; Tensile properties