

Abstract

A metal matrix composite is a composite material with at least two constituent parts, one being a metal and the other may be a different metal or some other material, such as a ceramic or organic compound. When three or more materials are present, it is called a hybrid composite. Aluminium is used as a matrix element owing to its lesser weight and found to be the best alternative with its unique capacity of designing a material to give desired properties. In this paper, production of hybrid aluminium based metal matrix composites by using liquid metallurgy stir- casting method and to investigate the various mechanical properties like tensile strength, yield strength, percentage elongation, impact strength and hardness have been identified by varying weight fraction of Silicon carbide and Titanium dioxide ceramic powder in the following proportions i.e. Aluminium LM6 90%, Silicon Carbide 5%, Titanium dioxide 5% , Aluminium LM6 84%, Silicon Carbide 9%, Titanium dioxide 7% and Aluminium LM6 86%, Silicon Carbide 11%, Titanium dioxide 3%.The Mechanical behavior of these composites are found individually and the internal structures were observed by using Scanning Electron Microscope(SEM).

Keywords— aluminium LM6; silicon carbide; titanium dioxide; stir casting; SEM