

Experimental Investigation of Aluminium Metal Matrix Composite with Silicon Carbide and Boron Carbide Reinforcement

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Abstract: Composite materials have been introduced into almost every industry in various forms. Composite materials generally have high strength and modulus to weight ratio than traditional engineering material. This feature reduces the weight of the system by 20-30 percent. The Aluminium hybrid metal matrix composites has increased in recent times due to their enhanced mechanical properties for satisfying the requirements of advanced engineering applications. The performance of these materials is greatly influenced by the selection of an appropriate combination of reinforcement materials. The ceramic particles, such as silicon carbide and aluminium oxide, are the most widely used reinforcement materials for preparing these composites. The Aluminium 6061 hybrid MMC reinforced with particulates with different weight fractions of Silicon carbide and Boron carbide by a stir-casting process. The experimental study has been carried out on the prepared composite to investigate the mechanical properties due to the addition of multiple reinforcement materials. Testing carried out in this project are Tensile test, Hardness test. The purpose of this project is to analyse the Tensile Strength and hardness of the material.

Keywords: MMC – Metal matrix composites, Tensile Test, Hardness Test, Stir casting.

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