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**Effect of Hardness and Tensile Behaviour of Al-2024/ TiB2 coated B4C particles synthesized by stir casting route**

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**Abstract**

Nowadays the production of light weight, low cost and high performance aluminium based composites has undergone significant evolution. In this work, Boron Carbide (B4C) were introduced into Al-2024 alloy produced by stir casting method. The B4C particles is coated with TiB2 via sol-gel process and reinforced in Al-2024 alloy by stir casting process to produce composite. Stir casting technique is gaining importance due to its easy setup, low cost, uniform dispersion of reinforcement compare to other techniques. Metal Matrix Composite is stir casted by incorporation of B4C reinforcements by varying 2%, 4%,6%, 8% and 10 wt% to investigate mechanical properties. Hardness, porosity and tensile behavior of alloy and composites were evaluated and found that both hardness and tensile strength increases with increases in percentage of reinforcement. On the other hand a slight increasing amount of porosity is observed with increasing the B4C particles of the composites. Microstructure of tensile fractured surface of Al-2024/B4Cp composites indicates that the presence of intact reinforcement B4C particles on the fracture surface and bonding between boron carbide and aluminum was superior indicating that deformation caused due to ductile behavior

**Keywords:**

Al-2024, Hardness, Porosity, Tensile, Tensile Fracture.

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