

“INVESTIGATION ON COMPRESSION PROPERTIES OF AL-7075/B₄C/WC HYBRID COMPOSITE USING TAGUCHI METHOD”

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ABSTRACT

Aluminium matrix composites (AMCs) are now usage in aerospace, marine, automotive and biomedical industries because of their inherent properties like high strength to weight ratio, low density, less corrosive resistance etc. The present investigation was made development of Aluminium hybrid composite by using stir casting process reinforced with boron carbide (B₄C) and tungsten carbide (WC) particles using design of experiment by Taguchi technique. The primary objective is to find the better parameters that give the highest tensile strength and hardness using Taguchi method to the castings. The test samples were prepared by varying the weight percentage of reinforcement, stirring speed and processing temperature in stir casting. An orthogonal array and analysis of variance were employed to investigate the influence of process parameters on the required properties. Optimum parameters were noted for attaining the maximum compression properties of composites by the application of Taguchi method. A mathematical model representing the tensile strength is developed using Taguchi method with the help of MINITAB software.

KEYWORDS: Aluminium composite, Taguchi, Compression, WC & B₄C

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