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Effect of Mechanical Properties of AL7075/Mica Powder Hybrid Metal Matrix Composite

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Abstract. The applications of aluminum-based Metal Matrix Composite (MMC) are very huge and it possesses good output when combined with Mica Powder. Because Mica is one of the naturally available crafted stones of minerals. It can bind with the materials easily in ambient conditions. This research work is to study the mechanical performance of the AL7075/Mica Powder hybrid MMC's. The varying grams of Mica powder (5 g to 25 g) are added with 500 grams of aluminum 7075. From the results obtained for the mechanical properties of AL7075/Mica Powder composite. Specimen 5 (500 g of AL 7075/25 g of Mica Powder) has excellent mechanical properties such as tensile strength of about 285 MPa, impact strength of about 18 J. The Vicker Hardness indentation is about 80 VHN, all these results define that after the addition of Mica Powder in the composite. The bonding nature of Mica with AL7075 always acts as a supporting agent in the defining of excellent mechanical properties of metal matrix composite.

Keywords: AL7075, Mica Powder, Tensile strength, Impact strength, Vicker's Hardness test, SEM morphology

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Introduction

The progression of composite materials with evaluated properties known as practically reviewed materials has reformed mechanical parts fabricating, particularly in the auto, flight, guard, and biomedical businesses. The mix of composite materials is in light of the fact that each layer is unique in relation to different layers. The strength and tribology properties of