

## INFLUENCE OF HEAT TREATMENT ON MECHANICAL PROPERTIES OF AL-2024 REINFORCED WITH TITANIUM DI-OXIDE

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### ABSTRACT

A composite material can be defined as a combination of two or more constituent materials (individual materials) with different physical or chemical properties, and which remain separate and distinct on a microscopic or macroscopic level within the finished structure. In other words, the constituents do not dissolve or merge into each other, although they act together to form a single material. In this project Al-2024 Metal Matrix Composites (MMC) will be produced using stir casting method by adding Titanium di-oxide (TiO<sub>2</sub>) reinforcement with varying weight percentages of 1.5, 3 and 4.5. Liquid state fabrication of metal matrix composites involves incorporation of dispersed phase into a molten matrix metal, followed by its solidification. In order to provide high level of mechanical properties of the composite, good interfacial bonding between the dispersed phase and the liquid matrix should be obtained. The casted composite will be subjected to heat treatment process and then the mechanical properties such as hardness, compression strength and tensile strength will be studied.

**KEYWORDS:** MMC, Stir casting, Heat Treatment, Hardness

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