

Magnesium Metal Matrix Composite Fabrication with Fly Ash by Using Electric Stir Casting

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Abstract: *In present condition, there are many challenges in automotive, aerospace and marine applications like enhancement of fuel economy, reduction in weight, maintaining safety, quality maintenance. To satisfy these requirements, there's need for develop new and advanced materials with new fabrication processes. The requirement for environmental friendly, light weight and high-performance material within the automotive applications has made us to think on research on developing magnesium metal matrix composites and their economical fabrication. Composite materials are like smart materials which can give us multiple properties at a time. Reinforcing materials can be used to boost various mechanical properties of magnesium metal matrix composites. The economical and environment friendly ways of manufacturing of composite materials is, hence, an essential element for expanding their use in large areas for applications. The supply of enormous quantity of reinforcing materials makes them attractive for research work. Magnesium materials have unique characteristics and have high performance rate of composites which give effective approaches to strengthen the properties of magnesium alloys. In this fabrication process, we have used magnesium metal as a base element and the second element is fly ash cenosphere which acts like reinforcement. The process used for fabrication purpose is electric stir casting. The change in mechanical properties like hardness, tensile strength and nature of microstructure was observed.*

Keywords: Electrical Stirrer, Fly ash cenospheres, Magnesium Metal Matrix Composites.

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