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Influence of Stir casting and Mechanical vibration on Mechanical Properties of Al5052 – Nano Al_2O_3 Composites

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Abstract: *The universal requirement for good quality and superior performing composites has led to research in hybrid metal matrix composite materials. Hybrid metal matrix composites are materials that consist of two or more types of reinforcement in a metal matrix. This combination of reinforcements can provide synergistic properties that are not possible with a single type of reinforcement. In metal matrix composites, Al alloy composite has been chosen widely because of its high strength-to-weight ratio and superior wear resistance. Reinforcements like particulate Al_2O_3, Sic, fly-ash and graphite, etc. can easily be included in the melt using a liquid state casting process. Ceramic based aluminum matrix composites (AMCs) have numerous industrial applications in the aerospace, marine, automobile, power plant, domestic and electronics industries due to their high specific strength and wear resistance properties. This review summarizes the existing and recent developments in stir casting process and mechanical vibration of aluminum matrix composites (AMCs). The current scenarios of AMCs and continuous stir casting processing and vibration are explored. The existing challenges and future scope of stir casting processing of AMCs are also discussed. Finally concludes that stir casting is a promising process for the fabrication of AMCs with improved properties. However, there are still some challenges that need to be addressed in order to further improve the quality and performance of AMCs produced by stir casting and mechanical vibration.*

Keywords: X- ray diffraction, Sem analysis, Mechanical properties

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