

Microstructural Study and Mechanical Properties of Al₂O₃ Reinforced Al 1100 (Mg) Cast Composites

Vinuth Kumar K. L.

Lecturer Selection Grade, Department of Mechanical Engineering
Government Polytechnic, Nagamangala, Mandya, Karnataka, India
klsvptk@gmail.com

Abstract: Aluminum MMCs are considered as conventional materials in the fields of aerospace, automotive and marine applications due to their improved properties like high strength to weight ratio, good wear resistance etc. Al₂O₃ can be considered as ideal reinforcements, because of their high strength, high aspect ratio and thermo-mechanical properties. The objective of this work is to reinforce Al₂O₃ particles with Al 1100 (Mg) alloy by melt stirring method. 0, 3, 6, 9 and 12 wt% of Al₂O₃ particles are added to Al 1100 (Mg) alloy to make aluminum based composites. Microstructural study using Scanning Electron Microscopy and Mechanical properties like tensile strength and hardness will be investigated for cast alloy composites. Variations in microstructures and mechanical properties in different wt% of Al₂O₃ particles have been compared with each other.

Keywords: AMMCs, Al₂O₃ Particulates, SEM, Hardness, Tensile Properties

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