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Effect of mg_2si along with bismuth on the microstructure andmechanical properties of mg-al/ mg_2si composite

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Abstract: Recent studies show that magnesium based composites can be considered as a viable option for weight reduction in automobiles. The influence of Mg_2Si formed by the addition of silicon on the microstructure and mechanical properties of Mg-Al/Mg_2Si composite has been investigated in the present work.Convectionalcomposite processing techniques produce large sized Mg_2Si particles, whichare highly brittlein nature and eventually will deteriorate the mechanical properties. Hence, formation of large sized Mg_2Si particles is eliminated by adopting in-situ casting technique and as well as adding modifier, Bismuth for refining Mg_2Si thereby improving mechanical properties. It is revealed from hardness tests that Mg_2Si increases the hardness values of the composite, however its variation is in limited range only. The tensile test results revealed that the tensile strength of the composite decreases slightlywith increase in silicon percentage in the composite. Compressive strength has been improved with increase in silicon percentage.
Keywords: Mg-Al/ Mg_2Si, in-situ composite, mechanical properties.

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