

Investigation on the Properties of Particulate Reinforced AA2014 Metal Matrix Composite Materials Produced by Vacuum Infiltration Method

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Abstract : Particulate reinforced aluminium matrix composites have gained more importance in automotive, aeronautical and defense industries due to their specific properties like as low density, high strength and stiffness, good fatigue strength, dimensional stability at high temperature and acceptable tribological properties. In this study, 2014 Aluminium alloy used as a matrix material and B₄C and SiC were selected as reinforcements components. For production of composites materials, vacuum infiltration method was used. In the experimental studies, the reinforcement volume ratios were defined by mixing as totally 10% B₄C and SiC. Aging treatment (T6) was applied to the specimens. The effect of T6 treatment on hardness was determined by using Brinell hardness test method. The effects of the aging treatment on microstructure and chemical structure were analysed by making XRD, SEM and EDS analysis on the specimens.

Keywords : metal matrix composite, vacuum infiltration method, aluminum metal matrix, mechanical feature

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