

Wear Behaviors of B₄C and SiC Particle Reinforced AZ91 Magnesium Matrix Metal Composites

Authors : M. E. Turan, H. Zengin, E. Cevik, Y. Sun, Y. Turen, H. Ahlatci

Abstract : In this study, the effects of B₄C and SiC particle reinforcements on wear properties of magnesium matrix metal composites produced by pressure infiltration method were investigated. AZ91 (9%Al-1%Zn) magnesium alloy was used as a matrix. AZ91 magnesium alloy was melted under an argon atmosphere. The melt was infiltrated to the particles with an appropriate pressure. Wear tests, hardness tests were performed respectively. Microstructure characterizations were examined by light optical (LOM) and scanning electron microscope (SEM). The results showed that uniform particle distributions were achieved in both B₄C and SiC reinforced composites. Wear behaviors of magnesium matrix metal composites changed as a function of type of particles. SiC reinforced composite has better wear performance and higher hardness than B₄C reinforced composite.

Keywords : magnesium matrix composite, pressure infiltration, SEM, wear

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