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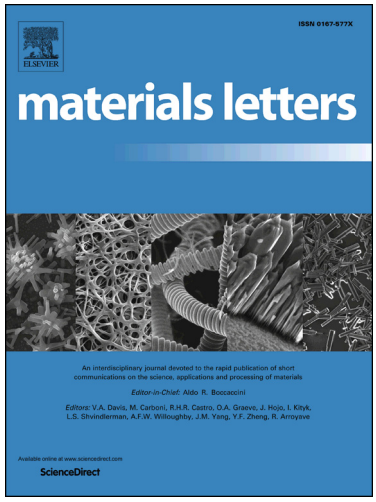

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PII: S0167-577X(18)30868-1
DOI: https://doi.org/10.1016/j.matlet.2018.05.114
Reference: MLBLUE 24414

To appear in: *Materials Letters*

Received Date: 6 February 2018
Revised Date: 3 April 2018
Accepted Date: 26 May 2018

Please cite this article as: L. Zhang, X. Luo, J. Liu, Y. Leng, L. An, Dry sliding wear behavior of Mg-SiC nanocomposites with high volume fractions of reinforcement, *Materials Letters* (2018), doi: https://doi.org/10.1016/j.matlet.2018.05.114

Dry sliding wear behavior of Mg-SiC nanocomposites with high volume fractions of reinforcement

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Abstract

The dry sliding wear behaviors of Mg based nanocomposites were investigated using the ball-on-disk wear tester. The friction coefficient of Mg nanocomposite reinforced with 15 vol% SiC nanoparticles is much higher than pure Mg and AZ31B alloy. Its wear resistance is about 23 times higher than that of pure Mg. Analysis on the surface and debris suggests that the delamination mechanism of Mg has been overcome by the addition of high volume fraction nanoparticles, and the dominant wear mechanism of the Mg-SiC nanocomposites is oxidation.

Keywords: Nanocomposite; wear and tribology; Mg; SiC; oxidation.

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