International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.6, pp 367-372, 2017

Tribological properties of micro and nano SiC reinforced Aluminium metal matrix composites

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Abstract : Metal matrix composites (MMCs) have a prospective for improved wear resistance over the unreinforced alloy and are the most capable in achieving enhanced mechanical properties. In this research, composites of Al 6061- micro SiC (5, 10 and 15 wt.%) and Al 6061- nano SiC (0.5, 1.0 and 1.5 wt.%) were produced by stir casting technique. Hardness and wear tests were performed on the micro and nano composite specimens. The fabricated nano composites showed improvement in hardness and wear resistance over the micro composites. The microstructure of the worn out specimen was examined by scanning electron microscope. Considering all the factors, it can be concluded that aluminium based composite with 1.0% by weight nano SiC reinforcement possess better wear resistance properties as compared to micro SiC reinforced aluminium metal matrix composites.
Keywords : Metal matrix composites, Silicon carbide, Wear test, Stir casting, Hardness.

K.R.Padmavathi *et al* /International Journal of ChemTech Research**,** 2017,10(6): 367-372.

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