

2nd International Conference and Expo on

Ceramics & Composite Materials

July 25-26, 2016 Berlin, Germany

Study on sliding wear behaviour of Cu/SiC_p metal matrix composites

M Shabani^{1,2}, M H Paydar¹, R Zamiri^{1,3}, M Goodarzi⁴ and M M Moshksar¹¹Shiraz University, Iran²University of Aveiro, Portugal³Norwegian University of Science and Technology, Norway⁴Tarbiat Modares University, Iran

In the present work, pure Cu and Cu/SiC_p metal matrix composites were prepared by sintering and sinter-forging processes. The tribological behaviour of copper and Cu/SiC_p composites was studied using a pin-on-disk tester. The influence of SiC particles and fabrication type on the tribological behaviour of pure Cu and Cu/SiC_p metal matrix composites were studied. Dry sliding wear tests represented that the composites with 60 vol. % SiC exhibits a lower wear loss compared to other compacts. This was due to the reinforcing SiC particulates being effective to reduce the extent of wear deformation in subsurface region during sliding. Moreover, the results indicated that applying external compressive force during the sintering process of Cu and Cu/SiC_p compacts has an important effect on reducing and eliminating porosities and reach to a high final density. Therefore, wear loss of the samples produced through sinter-forging process was improved significantly compared to conventionally sintered samples.

Biography

M Shabani is a PhD candidate of Materials Science & Engineering at University of Aveiro in Portugal. He has studied about metal matrix composite materials processing and characterizing for structural applications during his MSc at Shiraz University in Iran. After his MSc, he worked in oil and gas industry as Welding and Corrosion Engineer for the pipelines. Prior to starting his PhD, he worked on nanocrystalline ceramic coatings on Ti-based alloys for biomedical applications. His current research interests focus on development of nanocrystalline superhard coatings on ceramic materials for heavy duty machining of hard materials.

m.shabani@ua.pt

Notes: