

<b>Title:</b>	Effect of residual compressive surface stress on severe wear of alumina-silicon carbide two-layered composites
<b>Type:</b>	Article
<b>Source (ISSN):</b>	TRIBOLOGY INTERNATIONAL (0301-679X)
<b>Status:</b>	A paid open access option is available for this journal.
<b>Author:</b>	Dancera C.E.J; Yahya N.A.; Berndta T.; Todda R.I.; de Portua G.
<b>Volume (Issue):</b>	74: 87-92
<b>DOI:</b>	10.1016/j.triboint.2014.02.010
<b>Abstract:</b>	Ceramics consisting of Al <sub>2</sub> O <sub>3</sub> with a surface layer of Al <sub>2</sub> O <sub>3</sub> -10 vol% SiC have been fabricated by hot pressing. The residual compressive stress at the composite surface due to the difference in thermal expansion between the two layers has been measured experimentally by Cr <sup>3+</sup> fluorescence microspectroscopy. The wear resistance in the severe wear regime of the two-layered samples was higher than those of a reference single-layer Al <sub>2</sub> O <sub>3</sub> -10 vol% SiC sample. The improvement in the wear resistance was due to a decrease in the amount of surface pullout which was attributed to the presence of the biaxial residual compressive stress in the surface layer of the specimens.
<b>Keyword:</b>	ABRASIVE WEAR; LAMINATED COMPOSITES; AL <sub>2</sub> O <sub>3</sub> /SiC NANOCOMPOSITES; POLYCRYSTALLINE ALUMINA; BEHAVIOR; FRACTURE; CERAMICS; MICROSTRUCTURE; DAMAGE

**Related  
URL:**

1. <http://www.sciencedirect.com/science/article/pii/S0301679X14000619>
2. <http://www.researchgate.net/publication/260759315> Effect of residual compressive surface stress on severe wear of aluminasilicon carbide two-layered composites