

# Polymer Composites in Tribology

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## **Abstract**

The use of polymers and polymer composites in various tribological situations has become state of the art. Nevertheless, new developments are still under way to explore new fields of application for these materials and to tailor their properties for more extreme loading conditions.

This overview describes how to design polymeric composites in order to operate under low friction and low wear against steel counterparts. Special emphasis is focused on special filler (including spherical nanoparticle) reinforced thermoplastics and thermosets. The results are illustrated by different examples of practical applications.

Further information will be given on the fibre orientation dependence of wear of continuous carbon fibre/polymer matrix composites, and on attempts to predict their load bearing capacity and related wear mechanisms by the use of finite elements. In addition, some new steps towards the development of functionally graded tribo- materials are illustrated.

Invited Lecture, Center for Composite Materials, University of Delaware, Newark, Delaware,  
USA, April 14, 2008