

عنوان مقاله:

Evaluation of Mechanical and Tribological Properties of Glass/Carbon Fiber Reinforced Polymer Hybrid Composite

محل انتشار:

ماهنامه بین المللی مهندسی، دوره 31، شماره 7 (سال: 1397)

تعداد صفحات اصل مقاله: 7

نویسندگان:

B.C Routara - *Mechanical Engineering, KIIT University*

Abhijeet Nayak - *Mechanical Engineering, KIIT University*

Dipak Jesti - *Mechanical Engineering, KIIT University*

Ramesh Nayak - *School of Mechanical Engineering,, KIIT UNIVERSITY*

خلاصه مقاله:

Polymer matrix composites used in different industrial applications due to their enhanced mechanical properties and lightweight. However, these materials are subjected to friction and wear situations in some industrial and automobile applications. Therefore, there is a need to investigate the wear properties of polymer matrix composite materials. This article emphasizes the dry abrasive wear behavior of a hybrid glass/carbon ([GCGGC]S) composite. The mechanical and wear properties of the composite was evaluated and compared with maiden glass and carbon fiber reinforced polymer composite. Design of experiment of Box-Behnken type was adopted to perform the experiments. Response surface methodology (RSM) was employed to optimize the experimental parameters to minimize the specific wear rate of the composites. A second order mathematical model was developed. The model has predicted the optimum input parameters for minimum specific wear rate of 18.847×10^{-3} mm³/Nm for the hybrid ([GCGGC]S) composite. Furthermore, the model predicted specific wear rate value was validated with experimental one and found a close agreement between them.

کلمات کلیدی:

Glass/Carbon Hybrid Composites, Flexural, Wear, Response Surface Methodology

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/963138>

