

Experimental Investigation and Analysis of Wear Parameters on Al/Sic/Gr: Metal Matrix Hybrid Composite by Taguchi Method

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Abstract : Metal matrix hybrid composites (MMHCs) are now gaining their usage in aerospace, automotive and other industries because of their inherent properties like high strength to weight ratio, hardness and wear resistance, good creep behaviour, light weight, design flexibility and low wear rate etc. Al alloy base matrix reinforced with silicon carbide (10%) and graphite (5%) particles was fabricated by stir casting process. The wear and frictional properties of metal matrix hybrid composites were studied by performing dry sliding wear test using pin on disc wear test apparatus. Experiments were conducted based on the plan of experiments generated through Taguchi's technique. A L9 Orthogonal array was selected for analysis of data. Investigation to find the influence of applied load, sliding speed and track diameter on wear rate as well as coefficient of friction during wearing process was carried out using ANOVA. Objective of the model was chosen as smaller the better characteristics to analyse the dry sliding wear resistance. Results show that track diameter has highest influence followed by load and sliding speed.

Keywords : Taguchi method, orthogonal array, ANOVA, metal matrix hybrid composites

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