SOLID PARTICLE EROSION BEHAVIOR OF FLY ASH FILLED SHORT GLASS FIBER REINFORCED POLYESTER COMPOSITES

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ABSTRACT

Polymers find wide engineering applications due to their low density, reasonably good strength and wear resistance as compared to monolithic metal alloys. In this study, short glass fiber reinforced polyester based isotropic polymer composites are fabricated with five different fiber weight-fractions varies from 10wt% to 50wt% respectively. The effect of various operational variables, material parameters and their influences on erosive wear behavior of these composites has been systematically studied. In order to improve the erosion resistance further fly ash an industrial waste is reinforced with glass fiber based polyester composites. A finite element (FE) model of erosive wear was established for damage assessment and validated by experimental results. For this, the design of experiments approach using Taguchi's orthogonal arrays is used. It is recognized that there is a good agreement between the computational and experimental results, and that the proposed simulation method is very useful for the evaluation of damage mechanisms.