

U. K. Debnath,<sup>1</sup> M. A. Chowdhury,<sup>2</sup> D. M. Nuruzzaman<sup>3</sup>

## Study of Erosion Performance and Characterization of Ebonite Reinforced With Carbon Fibers

### Reference

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### ABSTRACT

Composite materials have many applications at different mechanisms in industry. The erosion characteristics of new combinations of ebonite reinforced with carbon fiber were analyzed in this study. Randomly-shaped sand ( $\text{SiO}_2$ ) particles of various sizes (300–355, 355–500, and 500–600  $\mu\text{m}$ ) were selected erosive element. Tested conditions such as impact angles between 15 and 90°, impact velocities between 30 and 50 m/s, and stand-off distances 15–25 mm at surrounding room temperature were maintained. The highest level of erosion of the tested composite was obtained at 60° impact angle, which signifies the semi-ductile behavior of this material. Erosion showed an increasing trend with impact velocity and decreasing nature in relation to stand-off distance. Surface damage was analyzed using SEM to examine the nature of the erosive wear mechanism.

### Keywords

ebonite reinforced with carbon fibers, erosion rate, operating parameters, SEM analysis

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<sup>1</sup> Dept. of Mechanical Engineering, Dhaka Univ. of Engineering and Technology, Gazipur, Gazipur 1700, Bangladesh, e-mail: uttam9096@yahoo.com

<sup>2</sup> Dept. of Mechanical Engineering, Dhaka Univ. of Engineering and Technology, Gazipur, Gazipur 1700, Bangladesh (Corresponding author), e-mail: asadzmn2014@yahoo.com

<sup>3</sup> Faculty of Manufacturing Engineering, University Malaysia Pahang, 26600 Pekan, Pahang Darul Makmur, Malaysia, e-mail: dewan052005@yahoo.com