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## Characterization study of carbon epoxy composite with and without filler material

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A typical composite material is a system of materials composing of two or more materials (mixed and bonded) on a macroscopic scale. Generally, a composite material is composed of reinforcement (fibres, particles, flakes, and/or fillers) embedded in a matrix (polymers, metals, or ceramics). The matrix holds the reinforcement to form the desired shape while the reinforcement improves the overall mechanical properties of the matrix. Addition of  $Al_2O_3$  into carbon strands reinforced epoxy matrix improves the tribological properties of the matrix material. The basic aim of the research work is to develop and characterize a new class of composites by using  $Al_2O_3$  filler with an epoxy matrix and carbon fiber as a reinforcing material. Attempt is made to use  $Al_2O_3$  filler in this carbon fiber reinforced epoxy matrix composites and experiments are conducted in laboratory conditions. Three body wear test has been conducted using dry sand abrasion tester in accordance with ASTM G65 and erosive test had been conducted using air jet erosion tester in accordance with ASTM G 76. Steps involved in the research work..

- Composite Processing-The fabrication of carbon fiber reinforced epoxy composites with and without  $Al_2O_3$  as filler
- To analyze how the material behaves, when the different proportions of  $Al_2O_3$  to carbon epoxy composites
- To investigate the wear properties of particulate filled carbon composites
- To investigate the erosion properties of particulate filled carbon composite at different impinging angles.

### Biography

C N Chandrappa has completed his PhD from UVCE, Bangalore and working as a Professor in Acharya Institute of Technology, Bangalore. He is having more than 25 years of experience in teaching and research. He has published more than 20 papers in reputed journals and conferences. His research area is Material Science and Engineering.

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