

Mechanical Characterization of Nano Filler Filled Polymer Hybrid Composite

Lokesh Yadhav B R¹, Govindaraju H K², Kiran M D²
Department of Mechanical Engineering^{1,2}

R. L. Jalappa Institute of Technology, Doddaballapur, Karnataka, India¹
BMS Institute of Technology and Management, Bengaluru, India²

Abstract: *The composite materials have been widely used not only for aerospace/aeronautics applications, but also in automotive, sports and construction industries. In the present study, the effect of nano alumina (Al₂O₃) particles on Nickel coated short carbon fiber reinforced epoxy (CF/Ep) nano composite was investigated for the enhancement of Mechanical properties. For this purpose different proportions (0, 2, 4 & 6 wt. %) of alumina (Al₂O₃) nanoparticles were reinforced in the Nickel coated Short carbon fibre reinforced epoxy composite in order to study the influence of nanoparticles. Test samples were prepared using open mould process method and machined according to ASTM standards. The hardness test showed that increase in filler content, hardness of the composite also increased and showed highest value (87.8) at 6 wt% filler loading. The tensile test revealed the increase of tensile strength and modulus as the filler loading increased (29.52Mpa and 2.73GPa) up to 4% and then started decreasing further addition of the alumina filler*

Keywords: Epoxy, Alumina, Carbon Fibre, Hardness, Tensile

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