

ABSTRACT

Fiberglass reinforced with polyester resin finds extensive applications in various industries, including automotive, electrical equipment manufacturing, housing, and insulation, owing to its low electrical and thermal conductivity properties. To enhance its mechanical and physical characteristics, the effects of incorporating metal powder, specifically copper (Cu), were investigated. Different volume fractions of Cu powder (1.4, 2.8, 4.2, 5.6) were uniformly mixed using a simple hand lay-up technique. The experimental results revealed a correlation between filler content and several key properties. As the volume fraction of metal powder increased, notable improvements were observed in hardness, thermal conductivity, electrical conductivity, and elasticity modulus. This study underscores the potential for tailored modifications in fiberglass-polyester composites through the strategic incorporation of metal powders, offering opportunities for enhanced performance across diverse industrial applications.

LIST OF SYMBOLS

Keywords: Fiberglass, Polyester resin, Metal powder (Cu), mechanical properties.

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