

## **YOUNG'S MODULUS AND THERMAL CONDUCTIVITY OF FIBERGLASS MATERIAL REINFORCED WITH EPOXY BASED COMPOSITE**

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**Abstract** - Fiberglass material has specific resistance greater than steel, good electrical insulator even at low thickness, naturally incombustible, does not emit smoke or toxic products when exposed to heat, low linear expansion coefficient, unaffected by the action of rodents and insects, highly useful in the building industry and suitable for produce electromagnetic windows. In this Research work, an investigation was made on the mechanical properties such as Young's Modulus and Thermal Conductivity of fiberglass reinforced with Epoxy resin and hardener gum. Composites made up with Epoxy resin: hardener gum is 10:1 ratio for dog bone type specimen with end tab samples. A good-quality specimen was prepared with the Epoxy resin and hardener gum mixture by applying smoothly and slowly on the fiber mat. Initial layer of the mould was filled with the mixture and then the appropriate quantity of fibers was placed such that the mixture completely spread over the fibers. Finally, the compression pressure was applied evenly to achieve the uniform thickness and cured for 24 hours at room temperature. The experimental samples were prepared in different layers to find the Young's modulus and Thermal conductivity. Results show that the Young's Modulus increases with increasing the number of layers. However, the thermal conductivity depends on the thickness of fiberglass mat reinforced with hardener gum and Epoxy resin mixture and increases with increasing the number of layers.

**Keywords:** Young's Modulus; Thermal conductivity; fiberglass mat; hardener gum; Epoxy resin.