

# **Influence of E-glass fiber content on thermal properties of glass-fiber reinforced composites**

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Versatile applications of glass-fiber reinforced composites are still growing despite the fact that they have been in use for several decades. They exhibit good mechanical performances along with low densities and these are some of the advantages due to which they replaced metals in the past years, especially in transportation and electro industry.

Properties of composites are dependent on the individual phases, i.e. the polymer-matrix, type of reinforcement and mineral filler, and can be tailored by properly selecting the individual constituents and their ratio.

Polymer resin based on unsaturated polyesters, glass fibers and CaCO<sub>3</sub> mineral filler is the most commonly employed in Bulk Molding Compounds (BMC), i.e. in a pre-prepared mixture of aforementioned constituents. The most common processing methods for BMCs are compression or injection molding, especially used for the mass production of small, complex-shaped components [1,2].

Since such materials are exposed to thermal stresses during processing as well as during service conditions, it is of great importance to study their thermal stability and thermal behaviour and properties.

Different samples of BMCs were commercially fabricated with varying E-glass fiber and CaCO<sub>3</sub> mineral filler contents, but keeping the content of polymer resin constant. The aim of this study was to investigate the effect of E-glass fiber weight content on physical properties and thermal behaviour of composites by means of the thermal analysis techniques.

[1] R. Burns, Polyester molding compounds. New York: M. Dekker (1982).

[2] JF. Monk, Thermosetting Plastics: Moulding materials and Processes. Harlow: Longman (1997).

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