



Modification of Mechanical and Thermal properties of Epoxy-Inorganic Composites

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Epoxy resin has wide applications due to its exceptional chemical resistance, toughness characteristics, and bonding effects. The epoxy-matrix composites are predominantly used in the design of high-performance materials¹. Thus, studying the properties of composite materials based on epoxy resin matrix is highly suggested in order to enhance their characteristics.

The effect of modified epoxy resin with micronized inorganic-additive (mineral mixture) used as a matrix in the production of impregnated composite materials was examined and compared. A set of various series was realized by variation of the inorganic-additive quantity.

The main focus was set on the improvement of the mechanical and thermal properties of the composite materials. The thermal properties of the composite samples were characterized by means of differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA), while the mechanical properties were examined using 3-point flexural tests, tensile strength and compression strength measurements.

Keywords: epoxy-matrix composites, inorganic additive, impregnation, mechanical properties, thermal properties

References

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