



An insight into mechanical & thermal properties of shape memory polymer reinforced with nanofillers; a critical review

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Abstract

The advent of smart material has open new avenues for multifarious applications in engineering and technology. A shape memory polymer (SMP) has ability to return from deformed shape to original shape induced by an external stimulus is one such example of smart material. Shape memory polymer in neat form exhibit inherently poor mechanical & thermal properties. The poor mechanical & thermal properties hinder its applications in engineering such as pick & place gripper robots, coronary heart stent and other applications. Several researchers have attempted to reinforce different SMP with nanofillers to augment mechanical & thermal properties. Important mechanical and thermal properties augmented were tensile strength, hardness, and thermal conductivity which further influence other properties like wear resistance. The current study critically exonerates the work carried out and delineates the technical gap which provides a strong scope for future research.

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Keywords

Shape Memory Polymer; Nanofillers; Mechanical properties; Thermal properties