Self-Healing Polymer Nanocomposite Materials: A Review

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Abstract

During the last few years, different kinds of autonomic and non-autonomic self-healing materials have been prepared using diverse techniques for a number of applications. The incorporation of suitable functionalities into these materials facilitates a healing mechanism that is triggered by damage/ rupture as well as various chemistries. This article presents a detailed study of the self-healing properties of different kinds of polymer nanocomposites utilizing a number of healing mechanisms, including the addition of several healing agents. The article will also provide an overview of different chemistries employed in the preparation of self-healing polymer nanocomposites, along with their advantages and disadvantages.