

Abstract Submitted
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Self-Healing of biocompatible polymeric nanocomposites OMAR ESPINO, DORINA CHIPARA, University of Texas Pan American — Polymers are vulnerable to damage in form of cracks deep within the structure, where detection is difficult and repair is near to impossible. These cracks lead to mechanical degradation of the polymer. A method has been created to solve this problem named polymeric self healing. Self healing capabilities implies the dispersion within the polymeric matrix of microcapsules filled with a monomer and of catalyst. Poly urea-formaldehyde microcapsules used in this method are filled with dicyclopentadiene that is liberated after being ruptured by the crack propagation in the material. Polymerization is assisted by a catalyst FGGC that ignites the self healing process. Nanocomposites, such as titanium oxide, will be used as an integration of these polymers that will be tested by rupturing mechanically slowly. In order to prove the self healing process, Raman spectroscopy, FTIR, and SEM are used.

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