



Advances in Self-Healing Polymer Composites

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Introducing a thermoreversible covalent bond in the crosslinked backbone allows topological reshuffling of polymeric networks, allowing us to rework and reform the crosslinked material. A well-established approach for the design and synthesis of covalent adaptable networks (CAN) is the dissociative Diels–Alder reaction, which takes place between furans and maleimides. As a further development in more easily reprocessable and self-healing thermosets, vitrimers are able to overcome the current drawbacks of CANs. One of the possible mechanisms enabling vitrimeric behaviour in epoxy resins is based on transesterification exchange reactions between esters and beta-hydroxyls formed by reacting epoxy precursors with suitable acids/anhydrides. This Special Issue aims to gather high-quality original research and reviews in the field of synthesis and functional characterization of thermoreversible self-healing polymers and their application.

keywords

- vitrimers
- covalent adaptable networks
- self-healing
- creep; recyclability
- reactive thermoset
- dynamic bonds
- shape memory





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Message from the Editor-in-Chief

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