Generalized Polymer Compatibilizer

Tech ID: 33899 / UC Case 2021-992-0

BRIEF DESCRIPTION

A novel approach to polymer compatibilization that enhances mechanical strength and compatibility across diverse polymer blends.

FULL DESCRIPTION

Researchers at UC Irvine developed a non-specific method for compatibilizing immiscible polymer blends by incorporating a covalent adaptive network (CAN) that can kinetically trap polymer blends, preventing phase segregation. Unlike traditional compatibilizers that require specific tailoring for each polymer blend, this method relies on the dynamic and reversible nature of Diels-Alder (DA) reaction to form crosslinks that enhance interfacial adhesion and mechanical strength, independent of polymer composition.

SUGGESTED USES

- Manufacturing of high-performance polymer blends for automotive components.
- Development of advanced packaging materials with enhanced mechanical properties.
- Production of recyclable and versatile polymer composites for construction and consumer goods.

ADVANTAGES

- Universal applicability across a wide range of immiscible polymer blends.
- Enhanced mechanical strength through the formation of covalent bonds across polymer interfaces.
- Reversible and dynamic crosslinking allows for processing flexibility and recyclability.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20230043444	02/09/2023	2021-992
United States Of America	Published Application	20230039491	02/09/2023	2021-992

CONTACT

Richard Y. Tun
tunr@uci.edu
tel: 949-824-3586.

OTHER INFORMATION

CATEGORIZED AS

- **Materials & Chemicals**
  - Chemicals
  - Polymers

RELATED CASES

2021-992-0

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5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683

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