

A Topochemical Approach towards Tensile-Strained C-C Bond and Recyclable Polymers

New polymers depolymerize cleanly at lower heat, enabling high-purity recycled plastics.

Researchers at Purdue University have discovered a new method of synthesizing free-standing polymers that allows depolymerization at lower temperatures. Typical polymers are difficult to recycle partially because depolymerizing the polymers requires high heat and pressures which can also cause side reactions. However, the Purdue polymers can be depolymerized to monomers with at least 98% purity. The low cost, high stability, and recyclability of the polymers make them promising for large-scale industrial synthesis.

Advantages:

- Recycled polymer production reduces petroleum consumption and environmental pollution.
- Solvents used in this process can be recycled.
- The polymers are chemically inert and thermally stable, unlike other recycled polymers.

Applications:

- plastics production
- recycled plastics production
- replacement for thermoset and photocured plastics

TRL: 3

Intellectual Property:

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Category

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