

Recyclable Plastic

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About Recyclable Plastic:

- The new recyclable plastic is based on **Poly(ethyl cyanoacrylate) or PECA**, which is prepared from the monomer used to make Super Glue.
- It is formed through a **process of polymerization** where single, repeating monomer units are strung together in a chemical reaction to make one long chain.
- It has comparable properties to existing plastics and **is stable in hot, humid environments**.
- The long polymer chains of the PECA plastic can be thermally 'cracked' at temperatures of 210 °C and the resulting monomers distilled into a clean product to use again.

What is Ethyl cyanoacrylate?

- Ethyl cyanoacrylate is a **highly reactive monomer** that has been used nearly exclusively to make Super Glue and related fast-setting adhesives
- It is produced on the ton scale from **methanol, chloroacetic acid, and sodium cyanide**, which themselves are sourced from hydrogen, nitrogen, methane, carbon monoxide, chlorine, and sodium hydroxide.

What is polymerization?

- It is a process in which relatively small molecules called **monomers combine chemically to produce** a very large chainlike or network molecule, called a polymer.
 - The monomer molecules may be all alike, or they may represent two, three, or more different compounds.
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Q1) What is Methanol?

Methanol (CH_3OH) is water-soluble and readily biodegradable, comprising four parts hydrogen, one part oxygen, and one part carbon, and is the simplest member of a group of organic chemicals called alcohols.

Source: [Scientists Created a New Recyclable Plastic Not Made From Crude Oil](#)

Source: <https://vajiramandravi.com/current-affairs/recyclable-plastic/>

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