



The preparation of **Nylon-2** involves the polymerization of amino acids, specifically **glycine**, which contains both amine ( $\text{-NH}_2$ ) and carboxylic acid ( $\text{-COOH}$ ) functional groups. Nylon-2 is a polyamide, a type of polymer characterized by amide linkages ( $\text{-CONH-}$ ) in its backbone.

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## Reaction Steps for Nylon-2 Preparation:

### 1. Starting Material:

- **Glycine ( $\text{NH}_2\text{-CH}_2\text{-COOH}$ )** is used as the monomer.

### 2. Polymerization Reaction:

- The amine group ( $\text{-NH}_2$ ) of one glycine molecule reacts with the carboxylic acid group ( $\text{-COOH}$ ) of another glycine molecule.
- This reaction is a condensation polymerization, meaning that a small molecule (water) is eliminated in each step.

### 3. Formation of Nylon-2:

- The reaction continues, leading to the formation of a polyamide chain. The repeating unit is derived from glycine.
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- The resulting polymer has the repeating unit  **$\text{-NH-CH}_2\text{-CO-}$** , characteristic of Nylon-2.
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## Key Features:

- Nylon-2 is biodegradable because it is derived from amino acids.
  - It has applications in bioengineering and medical fields due to its compatibility with biological systems.
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This preparation exemplifies the utility of amino acids in forming polymers with specific and versatile properties.