Polyamides are produced by the polymerization of bifunctional reagents (like polyesters). In polyamides the reagent monomers are usually diamines and dicarboxylic acids:

\[ \text{Polymerization of Diamines and Dicarboxylic Acids} \]

Some Important Amides

- Nylon 66

![Nylon 66 Chemical Structure](attachment:image.png)
The polymerization reaction between 1,6-hexanediol and hexanedioic acid produces poly(hexamethylene adipamide), or nylon 66:

\[ \text{Hexanediol} + \text{Hexanedioic acid} \xrightarrow{\text{Polymerization}} \text{Nylon 66} \]

Nylon 66 represents about 2/3 of the total production of polyamides in the U.S.

Polyamides are used in wearing apparel, carpeting, automobile seat belts, tire cord, parachutes, kitchen utensils, power-tool housings, automobile components, motor gears and bearings, ski boots, and tennis-racquet frames.

Specialty polyamides are used in fire-resistant clothing and bulletproof vests.

The most important biological polyamides are polypeptides and proteins.