

Preparation of Nylon

Purpose

To demonstrate the preparation of strands of nylon.

Materials

Hooked glass rod	1,6-hexanediamine
0.4 M NaOH	sebacoyl chloride
display glass	Hexane

Procedure

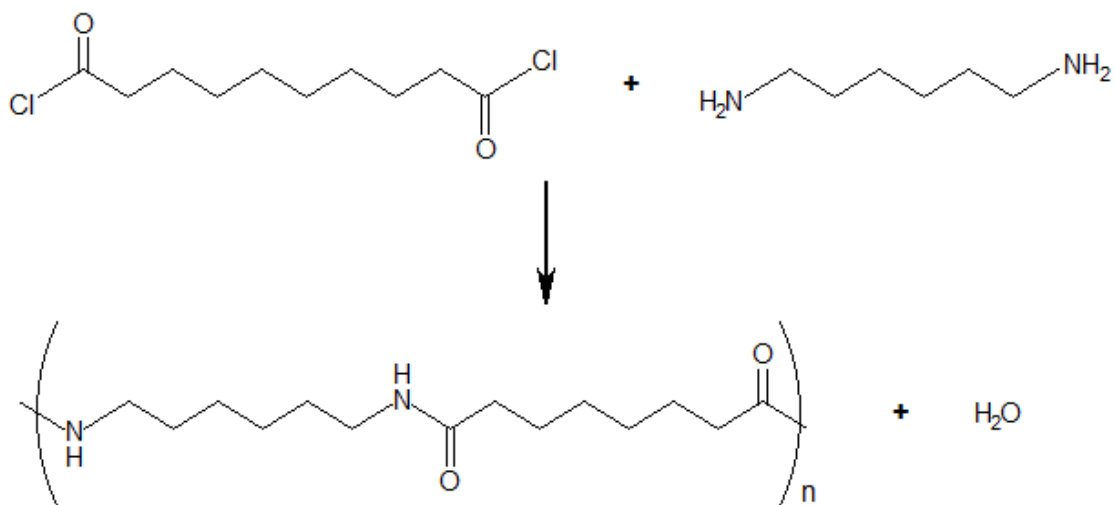
1. Pour 50ml of 5% 1,6-hexanediamine into a display glass.
 - a. To make 5% solution- dissolve 0.575g 1,6-hexanediamine in 12.5ml 0.4M NaOH
2. Pour 50mL of 2% sebacoyl chloride (in hexanes) into a 100mL beaker.
 - a. To make 2% solution- dissolve 1mL sebacoyl chloride in 12.5mL hexane
3. Carefully pour the sebacoyl solution down the inside of the display glass so that it floats on the 1,6-hexanediamine solution. The nylon layer forms in between the two layers.
4. Use the glass rod to grasp the nylon formed between layers. Pull the nylon strand out of the display glass. It is possible to obtain several feet of nylon from this reaction.

Disposal

Pour the mixture into a labeled waste container. Use acetone as needed to separate the strands of nylon from the glass rod.

Additional Information

1. The polymerization reaction that forms nylon can be represented as follows:



Reference

ICE Chemistry Fundamentals Workshop, Mt. San Antonio College, 1993.