

Polymers Procedure

Polymerization of Styrene

Short story (Part 1): Mix 2 compounds in a solvent and heat. Pour the solution into methanol and collect the product.

1. Put 2 mL of styrene and 5 mL of xylene into a 25 mL round-bottom flask and add 7 drops of *tert*-butyl peroxybenzoate.
2. Attach the round-bottom flask to the condenser and heat the mixture at reflux (i.e., boil the solution) for 20 minutes.
3. Cool the solution to room temperature and then pour half into a beaker containing 25 mL of methanol.
4. Carefully decant the liquid and let the solid polymer air dry.
5. Pour the remaining solution into a beaker and blow air over the surface to evaporate the methanol. A film of polymer should form on the beaker.

Polymerization of Nylon-6,10

Short story (Part 2): Prepare 2 solutions and put one into a separatory. Slowly drip one into the other and pull out the polymer to stretch it as far as possible. :

1. Add 2 mL of decanedioyl dichloride (sebacoyl chloride) into a 250 mL beaker and dilute with 100 mL of dichloromethane.
2. Add 1.1 grams of 1,6-hexanediamine, 4 pellets of sodium hydroxide, and 50 mL of distilled water to a second 250 mL beaker. Add your one inch stir bar and mix the solution until all the solids are dissolved. Then add the solution to your separatory funnel.
3. Place the separatory funnel just above the surface of the liquid in the 250 mL beaker and very slowly let the solution drain into the beaker. Polymer should form on the interface of the two phases.
4. Use a glass rod to pick up the polymer and stretch it as far as possible (think of any other way you can to maximize the length of the polymer).
5. Measure the length of the polymer obtained.