



Lab 9: Polymers Lab (Honors)

Introduction:

(Write 10 facts from Chapter 13.)

Materials:

Styrofoam cup

acetone

Insta-snow

water

bouncy ball polymer

bouncy ball mold



beaker

stirring rod

water

magic sand

diaper

scissors



Procedure A: Styrofoam and Acetone

1. Place a small Styrofoam cup into a dish of acetone.
2. Once the cup has dissolved, you can play with the polymer.
3. Record your observations.



Procedure B: Insta-snow

1. Put one scoop of Insta-snow powder in your hands.
2. Let one of your group members SLOWLY pour about 60 mL of water onto the powder in your cupped hands.
3. You can play with the snow. Put it in the container when you are done.
4. Record your observations.

Procedure C: Bouncy Ball

1. Fill a beaker with water.
2. Pour the bouncy ball polymer into the bouncy ball mold. It takes the entire packet. You can tap the mold on the desk to get the polymer to fit.
3. Let the entire mold sit in the beaker of water. Make sure that it does not spill when you first submerge it. Leave it submerged for about 5 minutes. Then remove it and let it sit for about 10 minutes before you try to open it.

4. Once you remove the ball, let it sit for 5 minutes before you bounce it. If you want to take it home, then you need to store it in a plastic bag.
5. Record your observations.
6. Clean Up: Rinse out the beaker and the molds. Clean up any spills.

Procedure D: Magic Sand

1. Pour some of the magic sand into a container of water.
2. Record your observations.

Procedure E: Dissecting a Diaper

1. Take one diaper and soak it in the large bowl of water for about 5 minutes.
2. Pull the diaper out of the water. Cut the liners of the diaper and reach in and pull out the polymer.
3. Record your observations.



Procedure E: Dissecting a Diaper

4. Take one diaper and soak it in the large bowl of water for about 5 minutes.
5. Pull the diaper out of the water. Cut the liners of the diaper and reach in and pull out the polymer.
6. Record your observations.
7. Dispose of the diaper when you are finished.



Data:

(I will show you how to do data in class.)

Questions: (Write the questions and answer them.)

1. What is a polymer?
2. What is the difference in a hydrophilic and hydrophobic polymer? List an example of each type that you saw in lab.
3. How does viscosity generally change as temperature increases?
4. The temperature of a 5 L container of N_2 gas is increased from 20°C to 250°C . If the volume is held constant, predict how this change affects the following:
 - a. the average kinetic energy of the molecules

- b. the average speed of the molecules
 - c. the strength of the impact of an average molecule with the container walls
 - d. the total number of collision of molecules with walls per second
5. What is critical temperature?

Conclusion:

(Write 3 sentences about any mistakes you made, anything that you learned, how the lab relates to real life, or polymers that you encounter in your everyday life.)