LESSON 12

PROPERTIES OF POLYMERS

In this lab, you'll investigate the unique properties of polymers by creating a new material from a simple mixture of borax and glue. By exploring how this material behaves when stretched, rolled, and bounced, you will gain insight into the nature of polymers and the chemical interactions that give them their distinctive characteristics.

Supplies

- 2 glass bowls
- White Elmer's glue
- Scale
- 4 g borax
- Plastic spoon

Instructions

1. In one beaker, mix 4 g of borax with 100 mL water and stir well.
2. In a second beaker, mix equal parts of white glue and water. This solution will determine the amount of new material made. The volume of the diluted glue should be between 100 mL and 150 mL.
3. Pour the borax solution into the beaker containing the glue and stir well using a plastic spoon.
4. When the solution is too thick to stir, remove the material from the cup and knead it with your fingers.
5. Play with the new material (stretch it, roll it into a ball, bounce it, etc.) and see what happens!

Discussion Questions

1. What happens to the new material when it is stretched or rolled into a ball and bounced?

_____

_____

2. Compare the properties of the glue with the properties of the new material.

_____

_____

3. The properties of the new material resulted from the bonds between the borax and the glue particles. If too little borax was used, what do you think would have happened to the new material?

_____

_____

4. Do you think the new material has the properties of a polymer? Why or why not?

_____

_____