

Chapter 8

ACTIVITY 8-1

• Properties of States of Matter

Lab Preview

1. Why should you wash your hands with special care after this activity? _____

2. Explain why there is a cap on the medicine dropper in the picture. _____

Why is a soft drink considered a liquid? Why is a hamburger considered a solid? Each state of matter has its own characteristics that allow us to classify it as that state.

Problem

How can the properties of a material be used to classify it as a solid, a liquid, or a gas?

Materials

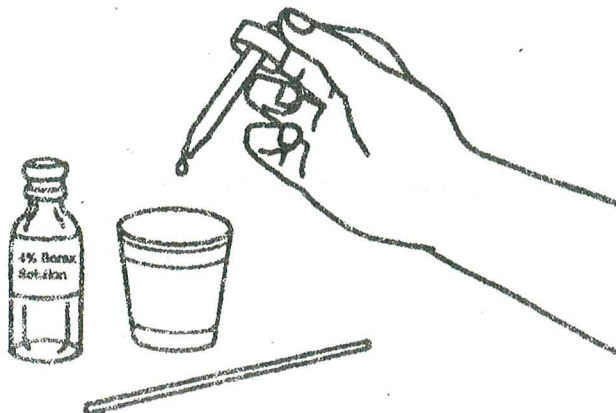


- dropper
- food coloring
- wooden stick
- graduated cylinder
- 4% solution of powdered borax in water
- 4% solution of polyvinyl alcohol (PVA) in water
- paper cup
- goggles
- apron

Procedure

1. Use the data table on the next page to record your observations.

2. Using a graduated cylinder, measure 10 mL of PVA solution into a paper cup. Add 2 drops of food coloring.
3. Using a dropper, add about 5 mL of borax solution to the PVA in the cup, and begin to stir vigorously with a wooden stick.
4. After it has been stirred for 2 minutes, what is the consistency of the material? _____
5. Transfer the material to your hand.
CAUTION: Do not taste or eat the material, and be sure to wash your hands after the activity. Rate the ease with which the material flows.
6. Form the material into a ball and then place it in the cup to test its ability to take the shape of its container.
7. Compare the volume of the new material with the volume of the original material before stirring.



Data and Observations

What did you see?

How does this relate to the motion of the particle?

Property	Observation	Interpretation
Ability to flow		
Shape change		
Volume change		

Analyze

1. Is the new material most like a gas, a liquid, or a solid?

2. What other materials have you seen that have similar properties to this one?

3. Considering the flow of the new material, how would you rate the strength of the attraction among its particles?

Conclude and Apply

4. Using the kinetic theory of matter, describe the closeness of the particles of matter in the new material.

5. How can properties of this material be used to classify it?
