

Bouncy Putty Slime

Overview: Time to play with polymers! Polymers are very long chains of molecules and are super fun because they act differently depending on what they are made of and how they're put together. This polymer slime will even bounce!

What to Learn: In today's experiment you will learn that polymers are long, long chains of molecules that often have very fun and useful properties. You will see that it's possible to play with polymers so they form different structures. The fishnet structure of today's polymer will cause it to bounce.

Materials

- borax (laundry whitener)
- water
- white glue
- disposable cups (2)
- popsicle sticks (2)
- tablespoon
- teaspoon
- optional: food coloring

Experiment

1. Wear your gloves and put your goggles on. No exceptions!
2. Combine 6 tablespoons water with one teaspoon borax in a cup. Stir with a popsicle stick for 10-15 seconds. (Optional: add a few drops of food coloring)
3. In another cup, mix 1 tablespoon white glue and 1 tablespoon water.
4. Pour glue solution into borax solution.
5. Stir for one second with a popsicle stick, then quickly pull the putty out of cup and play with it until it dries enough to bounce on table (3-5 minutes).
6. Pick up an imprint from a textured surface or print from a newspaper, bounce and watch it stick, snap it apart quickly and ooze apart slowly.
7. Complete the Data Table.

Bouncy Putty Slime Data Table

Compound/Object	Detailed Description (what does it look like? How does it act? Is it a solid or a liquid?)
White Glue	
Borax	
Bouncy Putty	

Reading

“Poly-” means many and “-mer” means part, or segment. Glue is a polymer, which is a long chain of molecules all hooked together like tangled noodles. When you mix the glue solution with the borax solution, the water molecules start linking the noodles together along the length of each noodle to get more like a fishnet. Scientists call this a *polymetric compound of sodium tetraborate and lactated glue*. We call it bouncy putty.

The property of a polymer will depend on what is happening at the molecular level. Things that are made of polymers look, act, and feel differently based on how the molecules are connected. Some are rubbery, some are gooey, and some are hard.

Exercises:

1. Think about a ladder. If the glue solution is one side of the ladder and the borax solution is the other side, what is holding the two sides together?
2. Is glue a solid or a liquid? How about the bouncy ball?
3. Was this a physical or chemical change? How do you know?
4. Why does the ball bounce?

Answers to Exercises

1. Think about a ladder. If the glue solution is one side of the ladder and the borax solution is the other side, what is holding the two sides together? (Water molecules.)
2. Is glue a solid or a liquid? (liquid) How about the bouncy ball? (solid)
3. Was this a physical or chemical change? (chemical) How do you know? (it forms a completely new substance)
4. Why does the ball bounce? (The polymer forms a fishnet structure which gives it elasticity)