



Science Experiment: Polymer Fun

Project: Science, Arts & Crafts, Chemistry

Supplies:

- Zip-lock baggie
- Water
- Elmer's® School Glue
- Borax (also called 20-Mule Team household cleaner);
- Measuring cups and spoons
- Two recycled glass jars with a lid
- Permanent marker
- Disposable gloves, can be used if there is concern over handling borax.
- Food coloring (optional)

Time: 1 Hour

What to Do:

1. Start by making a prediction. What will happen with mixing these ingredients? Write down your predictions that you use!
2. First you will need to prepare the 50% glue solution, which is made up of half glue and half water.
3. Add one cup of glue and one cup of water to one of the jars.
4. Tightly secure the lid to the jar and shake until glue is fully diluted, and no gooey clumps remain.
5. Using a permanent marker, label this jar "50% Glue".
6. Next, you will make the Borax solution, which is made up of 4% Borax in water. Usually you would weigh the borax, but you can approximate this solution by adding 2 tsp Borax to 1 cup of warm water to a jar.
7. Tightly secure the lid to the jar and shake until no particles of Borax remain, and the solution is clear.
8. Using a permanent marker, label this jar "4% Borax".
9. Now we will add the 50% glue and 4% Borax solutions together in different ratios, to see what properties the final mixture will have. First need to make a data table in your lab notebook like Table 1 below.

50% Glue Solution	4% Borax Solution	Observations	Physical Properties
1 Tbsp	3 Tbsp		
2 Tbsp	2 Tbsp		
3 Tbsp	1 Tbsp		
5 Tbsp	1 Tbsp		

9. For each mixture, first add the correct amount of the 50% glue solution to a Zip-lock baggie.
10. Then add the corresponding amount of the 4% Borax solution to the baggie.
11. Seal the baggie, and using your fingers squish the mixture around to mix together the ingredients.
12. Write down your observations in your data table.
13. When the mixture begins to form a sticky glob, you can take it out of the baggie.
14. Write down your description of the physical properties of the material in your table. Remember to use words like runny, slimy, sticky, hard, soft, bouncy, etc.
15. *Cleanup Tip:* If you have leftover 50% Glue or Glue/Borax mixtures, *do not* pour them down the drain. They can cause clogs. Instead, throw them in the garbage.

Reflect:

1. Which ratio of ingredients produced the best product?
2. What will you call your new product?
3. What are properties of your new product?

Apply:

1. Why is it important to know what products are made of?
2. How do we experiment with other things to make new products?
3. What are some products made with ingredients similar to this that we use every day?

Source:

Science Buddies, www.sciencebuddies.com.