Clear Slime Polymer

Many of the materials we use every day, like starch, are made up of molecules called polymers. Poly means "many" and mer means "unit." Because the units of chains are so long, their movement is restricted.

Materials
- 2.46 g sodium borate
- 0.63 g guar gum (1/4 tsp.)
- 200 mL water
- 100 mL graduated cylinder
- 2-250 mL beakers
- 2 stirring rods
- Balance
- Paper towels
- Food coloring
- 4-5 Ziploc™ bags (1 per person)

Substitutions
- 1 teaspoon of borax
- 5/6 cup of water
- measuring cup
- 2-9oz plastic cups
- 2 spoons

Procedure
1. Pour 100 mL of water into a beaker.
2. Add the sodium borate to the water and stir until the solid is completely dissolved (about 1 minute).
3. Label the solution.
4. Pour 80 mL of water into the other beaker
5. Add guar gum to water WHILE STIRRING. Continue stirring until the solid is completely dissolved (about 1 minute).
6. Label the solution.
7. Add food coloring of your choice to guar gum solution and stir for 1 minute.
8. Add 5 mL of the sodium borate solution to the guar gum solution. Stir for 1 minute then let it sit for 2 minutes.
Extensions

1. Challenge students to modify the basic recipe and demonstrate each resulting product. Can they create a slime that is stretchy, or one that bounces?

2. Extend the activity into other disciplines by having each team name their new product and create a marketing strategy including packaging, cost analysis, and advertising.

Teacher's Notes

The secret to this colloidal suspension is the guar gum. It is not available through common sources and must be ordered through a chemical company.

This slime can be stored in a Ziploc™ bag so students can take it with them. It’s usual properties will diminish over time as it dries out.

Try the other non-Newtonian fluids in this lab manual! This recipe was adapted from a Flinn Scientific publication and an issue of NSTA Science Scope magazine.