

Playing with Polymers Recipes

Gloop

Amount: Each person can make a batch!

This is a polymer made from white glue and sodium tetraborate. White glue is made with polyvinyl alcohol, or PVA, which is a plastic made from oil. Borax is a natural mineral mined from the earth, which is made of boron, sodium, oxygen, and water. It is used as a laundry agent and cleaning product. When you add water to glue, the PVA starts to dissolve in the water. When you add the borax solution, it reacts with the PVA to polymerize and form the slime we call Gloop.

- 1 - Use a ruler to make a mark that is 1 cm from the bottom of a small cup.
- 2 - Pour white glue into your cup until you reach the 1 cm mark.
- 3 - Add 2 drops of food coloring to the glue and stir with the wooden stick.
- 4 - Use a clean graduated cylinder to measure out 7 ml of water and add it to the glue. Mix well.
- 5 - Use a clean graduated cylinder to measure out 8 ml of borax solution. Add it to the glue mixture and stir.
- 6 - Once the Gloop is formed, remove it from the cup and knead it with your hands for several minutes. It should start to form a nice blob of Gloop after a few minutes.
- 7 - Put your Gloop into a small plastic bag. Use a marker to label your bag of slime and place in the correct area.
- 8 - Use a dry paper towel to wipe out your cup and clean your hands. Save the cup for the next slime. Do not wash your cup or hands in the sink until you have wiped off all of the slime gunk!

Slime Tips

If it's too sticky, add 1-2 drops of borax solution and keep working with it until you get a good blob that isn't too sticky.
If it's too stringy, add a drop or two of white glue and keep working with it until you get it to a nice blob.

Boogers

Amount: Make 1 batch and share!

This is a polymer made from white glue and laundry starch. Laundry starch is a polymer in water and is used to help fabric resist wrinkling. This one can be very messy! Don't dump it out of the cup until you have a good blob that doesn't stick to everything!

- 1 - Place 1 cm of white glue into the bottom of your plastic cup and then mix in 2-3 drops of food coloring.
- 2 - Add 15 ml of the colored laundry starch and stir with a stick. Have your partner stir the glue as you add the starch.
- 3 - Once the Boogers are formed, remove from the cup and knead with your hands for several minutes. If your Boogers are too sticky (slime stays on your hands rather than in a blob), put them back in the cup and continue adding drops of starch until you get it just right.
- 4 - Split your sample in half and put into small plastic bags. Use a marker to label your bag of slime and place in the correct area.
- 5 - Use a dry paper towel to clean your hands. You can throw your cup away. Do not wash hands in the sink until you have wiped off all of the slime gunk!

Slime Tips

If it's too sticky, add 1-2 drops of starch and keep working with it until you get a good blob that isn't too sticky.
If it's too stringy, add a drop or two of white glue and keep working with it until you get it to a nice blob.

Don't forget ... Do the slime tests and fill in your data chart!

Goobers

Amount: Make one batch and share!

This is a polymer made from guar gum and sodium tetraborate. Guar gum is used as a thickening agent in many foods and other substances, such as toothpaste. This one is the toughest slime to make and can be quite a mess! Make sure to keep it on a plate or in your hands!

- 1 – Place the plastic cup labeled "Guar Gum" on a triple-beam balance and find the mass of the cup.
- 2 – Add 0.6 to the measurement and adjust the scale to the new number. Use a clean stir stick to add guar gum powder to the cup a little bit at a time until you get the scale to balance. *It won't take very much!*
- 3 - Measure 40 mL of water into a large graduated cylinder. Pour the water into a clean cup – not the one with the guar gum powder.
- 4 - Have your partner use a stick to stir the water into the guar gum a little bit at a time to keep it from clumping. If it does clump, break up the clumps with the stick and stir until dissolved. The mixture will thicken slightly within a few minutes. Do not do the next step until the mixture has thickened!
- 5 - Add food coloring using the information in the box at right. Stir until mixed into the guar gum solution. →
- 6 - Measure 12 mL of borax solution into a small graduated cylinder. Pour it into the cup and stir. The mixture should "gel" in a few minutes. Dump the slime onto a large plate and let it sit for a few minutes. Try mixing it together with your fingers to see if that helps it gel.
- 7 - Split your sample in half and put into small plastic bags. Use a marker to label your bag of slime and place in the correct area.
- 8 - Use a dry paper towel to clean your hands. You can throw the cup away. Do not wash hands in the sink until you have wiped off all of the slime gunk!

Color Guide

Funky Slime

- 1 drop of green
- 2 drops of yellow

Throat Junk

- 1 drop of green
- 2 drops of yellow
- 1 drop of red

Blood Clot

- 6 drops of red
- 1 drop of green
- 1 drop of yellow

Nasty Slime

- 2 drops red
- 2 drops yellow
- 1 drop blue

Super Slime

Amount: Each person can make a batch!

This is a polymer made from PVA (polyvinyl alcohol) solution and sodium tetraborate. PVA is used to make many products we use today, such as plastic hoses, inks, and solutions for contact lenses. It is also found in glue! We have used the sodium tetraborate for other slimes. Mix up a batch of Super Slime and see what happens!

- 1 - Place 20 ml of colored PVA solution into a clean plastic cup.
- 2 - Add 4 ml of Borax solution and stir with a stick. If it is watery, add a few more drops of borax solution and stir until the slime starts to stick to the sides of the cup.
- 3 - Once the Super Slime is formed, remove from the cup and knead with your hands for several minutes to get it to the right slime consistency.
- 4 - Put your Super Slime into a small plastic bag. Use a marker to label your bag of slime and place in the correct area.
- 5 - Use a dry paper towel to wipe out your cup and clean your hands. Save the cup if you want to make another batch of slime. Do not wash your cup or hands in the sink until you have wiped off all of the slime gunk!

Slime Tips

If it's too sticky, add 1-2 drops of borax and keep working with it until you get a good blob that isn't too sticky.

If it's too crumbly, add a drop or two of PVA solution and keep working with it until you get it to a nice blob.

Don't forget ... Do the slime tests and fill in your data chart!