Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Polymerization- Slime Time and smells

There are a variety of different types of polymers out there. The polymer made in class is going to a crosslinked polymer made from polyvinyl alcohol solution and borax. This polymer has some interesting properties.



Procedure

**Polymer 1**

1. In a 100 mL beaker add 20 mL of Polyvinyl alcohol solution.
2. You may add food coloring to this solution if you want, although this is not necessary (one or two drops).
3. Add 5 mL of borax solution.
4. Stir the mixture with a scoopula.
5. Once the solution clumps too much to stir with the scoopula take it out of the beaker and knead it in your hand for 5-10 minutes.
6. Your polymer will change to being more firm.

**Polymer 2**

1. In a 100 mL beaker mix 5 mL of Borax solution, 5 mL of Elmer’s glue, and 5 mL of cornstarch.
2. You may add food coloring if you want, although it is not necessary.
3. Stir the mixture with a scoopula.
4. Once the solution clumps too much to stir with the scoopula take it out of the beaker and knead it in your hand for 5-10 minutes.
5. Your polymer will change to being more firm.

**Polymer 3**

1. In a 100 mL beaker mix 5 mL of Borax solution, 5 mL of Elmer’s glue, and 5 mL of cornstarch and 30 mL of Shaving cream
2. You may add food coloring if you want, although it is not necessary.
3. Stir the mixture with a scoopula.
4. Once the solution clumps too much to stir with the scoopula take it out of the beaker and knead it in your hand for 5-10 minutes.

**Polymer 4 Polyester**

* 1. There are 2 carboxylic acids in dropper bottles; acetic acid and propanoic acid. BOTH ARE HIGHLY CONCENTRATED AND DANGEROUS!! There are also 5 different alcohol solutions; isopentyl alcohol, 1 butanol, 1 propanol, ethanol and methanol.
	2. Choose one alcohol and one carboxylic acid. In a centrifuge tube add 10 drops of alcohol and 20 drops of carboxylic acid.
	3. Add one drop of sulfuric acid. THIS IS 18 M, USE EXTREME CAUTION!!
	4. Seal the centrifuge tube and place it in a deep well plate.
	5. Repeat this with 3 other combinations for a total of 4 centrifuge tubes.
	6. Fill the deep well plate with the tube with hot water and let it sit for 10 minutes.
	7. After 10 minutes, open the tube and waft the fumes to smell them.
	8. Put the liquid in the waste container marked for this lab, and rinse the tubes out.

Combination

Alcohol Carboxylic acid Description of scent

1.

2.

3.

4.

1. Describe the properties of your slime polymers. Compare and contrast them. What happens when you make it into a shape and leave it on the table, does it bounce, how does it feel when you throw it up and catch it etc.?
2. Fully describe what a polymer is and how it forms.