Names: _____ Per: _____ Date: _____

Preparing an Ester

Purpose: To perform an **esterification** reaction and to observe the properties of the reactants and the resultant product.

Materials:

50 mL beaker	Methanol	Pipets
Test tubes	Pentanol	Tap Water
Glass stirring rod	Butanol	2 10mL graduated cylinders
Aspirin	Octanol	Mortar and Pestle
Benzoic Acid	Concentrated sulfuric acid	Glacial acetic acid

Precautions: Have your safety goggles covering your eyes at all times. You will be dealing with CONCENTRATED SULFURIC AICD!!!! Also, methanol is flammable. Also, the test tubes get quite hot so be careful!!!

Procedure:

1. Grind one aspirin tablet in the mortar and pestle. Transfer the powder into the test tube. Describe the smell of the aspirin:_____
2. Fill the 50mL beaker 2/3 full of water. This will be your smelling beaker. Get this ready BEFORE you start mixing reactants.
3. Place a pipet full of the acetic acid in the test tube.
4. Add a pipet full of one of the alcohols in the same test tube.
5. Add a pipet full of the concentrated sulfuric acid into the test tube and swirl gently for 1-2 minutes. Be careful, the test tube will be hot!
6. Pour the test tube's contents into the 50mL beaker and stir its contents.
7. Waft the mixture and record its scent in the table below.
8. Rinse the test tube and beaker with A LOT of water. After you rinse it with water, place a pipet full of methanol along the sides of the test tube AND the beaker and rinse it again with water. This will help to wash away all the organics.
9. Repeat steps 2-8 for each combination below. For the aspirin, place all of the ground tablet into the test tube. For the benzoic acid, mass out 0.40g.

Data Table:

Test Tube	Carboxylic Acid	Alcohol (1.0mL)	Odor
1	Acetic Acid (1.0mL)	Butanol	
2	Acetic Acid (1.0mL)	Pentanol	
3	Acetic Acid (1.0mL)	Octanol	
4	Salicylic acid (1 tablet aspirin)	Methanol	
5	Benzoic acid (0.40g)	Ethanol	

Post- Lab Questions (No improvements needed for this lab):

1. Write the complete chemical equations for all the reactions above. Use structural formulas in your chemical equations. Circle and clearly label ALL functional groups.
2. What is the name of the ring in methyl salicylate and salicylic acid?
3. What is the role of the sulfuric acid?
4. What is the formal name of acetic acid (name it like we did in class)?