

Name _____
Class _____

Period _____
Date _____

Preparation of Esters

Pre-Lab

- 1) What are the two substances that combine to form esters?
- 2) What is the name of an ester formed from methyl alcohol (methanol) and acetic acid?
- 3) What is the purpose of using concentrated Sulfuric acid in this lab?
- 4) What is another name for an acetic acid solution? (Hint: It is a common house hold solution)
- 5) Why should you use a hot plate instead of a Bunsen burner for heat in this lab?

Procedure

- 1) Put on your lab goggles, gloves and obey all safety rules.
- 2) Prepare one test tube to make an ester. You will be assigned one of the three.
- 3) Prepare your test tube according to the table below:

| Test tubes | Carboxylic Acid | Alcohol | Concentrated H ₂ SO ₄ |
|------------|-------------------|----------------|---|
| A | 1mL acetic acid | 1mL 1-octanol | 4 drops |
| B | 1g salicylic acid | 1mL methanol | 4 drops |
| C | 1mL acetic acid | 1mL 1-pentanol | 4 drops |

- 4) Heat the tube in a hot water bath, NOT boiling, for about 10 minutes.
- 5) Cool the test tube by immersing them in a cold water bath.
- 6) Add 5mL distilled water to each tube.
- 7) Hold the test tube in front of you, NOT directly under your nose, then wave your hand towards you over the test tube, (waft) and note the odor.
- 8) Dispose of the chemicals in proper waste containers and wash your hands before leaving the room.

Data

| Test tubes | Odor |
|------------|------|
| A | |
| B | |
| C | |

Post lab questions

1) Write the reaction for each tube showing them as line structures.

| Test tubes | Equation |
|------------|----------|
| A | |
| B | |
| C | |

2) Write the proper IUPAC name of the product formed in each tube.

| Test tubes | Name of product |
|------------|-----------------|
| A | |
| B | |
| C | |