FLINN SCIENTIFIC

Name_____

Laboratory Report

Charcoal–Salicylic Acid Mixture (Observations)		
	Trial 1	**Trial 2**
Mass of Erlenmeyer flask		
Mass of Erlenmeyer flask and charcoal–salicylic acid mixture		
Mass of filter paper (step 7)		
Mass of filter paper and charcoal (step 18)		
Mass of filter paper (step 13)		
Mass of filter paper and salicylic acid (step 18)		

1. For each trial, calculate (a) the original mass of the charcoal–salicylic acid mixture, (b) the mass of recovered charcoal, (c) the mass of recovered salicylic acid, and (d) the total mass of recovered solids.

2. Calculate the **percent recovery** of the charcoal–salicylic acid mixture for each trial.

$$\text{Percent recovery} = \frac{\text{Total mass of recovered solids}}{\text{Original mass of charcoal–salicylic acid mixture}} \times 100\%$$

3. For each trial, divide the mass of recovered charcoal by the total mass of recovered solids and multiply the result by 100. This is the **mass percent of charcoal** in the mixture.

4. In a similar manner, calculate the **mass percent of salicylic acid** in the mixture.

5. Label each of the following as a **physical** or a **chemical change:**

   a. Salicylic acid dissolves in the sodium hydroxide solution.

   b. The mixture is filtered to separate the charcoal.

   c. The filtrate is acidified to precipitate the salicylic acid.

6. In comparing results obtained in this experiment with the actual or known percent salicylic acid in the mixture, a student found that the amount of salicylic acid isolated was 25% less than the calculated amount. Discuss possible sources of error that might account for this discrepancy, and describe a controlled experiment you could do to determine the source of the error.

7. Salicylic acid may be crystallized from hot water by dissolving the solid in a minimum amount of boiling water and then cooling the mixture to room temperature. Is this a physical or a chemical change? Explain your reasoning.