Recrystallization of Aspirin

Organic chemists usually report their synthetic results as percent yield. It is very important that you know how to do this. Your instructor will show you the following steps:

1) Make sure you have a balanced equation for the reaction you ran as well as the weight of starting material.

2) Convert the weight of starting material into moles.

3) Multiply by a factor that has the number of moles of product on top and the number of moles of starting material on the bottom. This is why a balanced equation is a must.

4) Multiply by the molecular weight of the product. This gives the theoretical yield in grams. If your answer is not in grams, you probably made a mistake.

5) $$\%\, Yield = \frac{actual\ \ yield}{theoretical\ \ yield} \times 100\%$$

or

$$\%\, Yeild = \frac{amount\ of\ \ product\ recovered}{theoretical\ \ yield} \times 100\%$$

Your crude aspirin is not fit for human consumption. Do not eat any of it. The major impurity is unreacted salicylic acid. Recrystallization will remove most of this.

Procedure:

1) Transfer your crude aspirin to a 250 mL (or 125 mL) Erlenmeyer flask and add ***6mL of absolute ethanol.***

2) Heat and boil it gently for 2-3 minutes, until the crude aspirin completely dissolves. If it is not completely dissolved continue for boiling for another 1-2 min.

3) Add ***25mL of water,*** 5mL at a time (5mL every 5 minutes) to the flask and boil it gently for 2-3 min.

4) Cool the flask in an ***Ice*** bath for 10-15 minutes. While the mixture cools, set up a vacuum filtration apparatus.

5) Collect the crystals and put them in a small beaker to dry until next week.