

Lab 07: Benzocaine

Reading

- Pavia 4th edition, et al., Expt. 45 (pp. 370–373)
- Essay: Local Anesthetics (pp. 367-370).

Prelab Assignment:

Your prelab should include: Date, Introduction, Haz-Mat, Apparatus (page 601 Figure 7.6A), Reactant Table, Chemical Reaction (water is a product too!), Separation Scheme, and Procedure.

Procedural Notes

We will follow the procedure in the lab book. Please note the following:

1. We will use a sand bath instead of an aluminum block.
2. When using the water-cooled condenser, the water should flow into the bottom inlet and out the top inlet. Be careful when turning on the water—too high a water pressure will blow the hoses off the condenser and spray water onto the lab bench (kaboom!).
3. Use pHydriion paper to measure the pH in the precipitation of benzocaine part of the experiment. Do not dip the paper into the reaction because indicator from the paper can be washed into the reaction mixture. Instead, get a drop of the mixture with a stir rod and touch it to the paper.
4. We will use a test tube rather than a Craig tube for recrystallization.
5. Do not take the MP of the crude product. Just record the mass of the dried crude product.
6. Calculate percent yield and percent recovery.

Postlab Questions

Answer these questions in your lab notebook after your conclusion in a section titled "Post-lab Questions"

1. Draw a complete mechanism using curved arrows to show each step of the reaction of PABA (*para*-aminobenzoic acid) with ethanol under acidic conditions.
2. Draw the product of the reaction of the ester product reacting with water.
3. Why is it important that absolute ethanol be used instead of 95% ethanol?
4. Write the equation for the reaction that occurs when sodium carbonate is added to the mixture of the reaction and water (hint: a gas is evolved).
5. Explain why benzocaine precipitates during the neutralization.