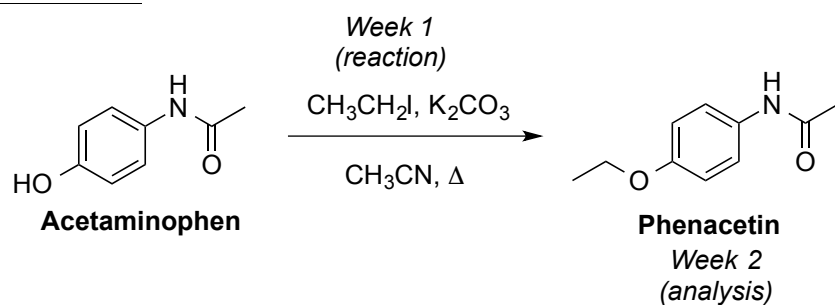


CHEM 110L, Lecture 7

Experiment 5, Part 1 – Synthesis of Phenacetin

Connecting prior knowledge: Provide an example of a typical Williamson ether synthesis. Identify the nucleophile, electrophile, and base in the reaction.

Synthesis of Phenacetin



Identify the **nucleophile**, **electrophile**, and **base** in the synthesis of phenacetin. Propose a **mechanism** for this transformation.

Read Exp 5 on the 110L website to address the following prompts.

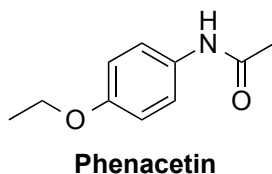
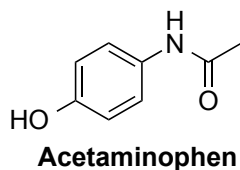
Draw a diagram of the **reaction setup**. What are the **safety concerns**? What can you get done **during the reflux time**? In which experiments have you used similar setups?

Draw a **flow chart with diagrams** of the **reaction work up** – label each layer with contents. In which experiments have you used similar reaction work ups?

What are the **safety concerns** for the **reaction work up** and what can you get ready ahead of time to allow the work up run smoothly?

Analysis: What forms of analysis will you perform in week 1 and week 2? What are the **expected results** for each (NMR addressed separately)? How can you use your **time efficiently** to get the best (most accurate) results? *This does not necessarily mean getting it all done quickly!*

Predict the ^1H NMR spectra for both compounds below – chemical shifts, integration, & splitting.



'Formal Report' Overview

- Intro (2 sets of pre-lab Q's), quizzes, notebook pages, results (in-lab Q's), abstract, experimental methods
- *Week 1* – pre-lab questions & notebook pages
- *Week 2* – notebook pages; bring writing guidelines and refer to page 6 of Exp 5 to write a draft of abstract & exp.
- *Week 3* – pre-lab questions & notebook pages; typed, double-spaced draft of abstract & exp.
- Full report due 1st week of June: notebook pages, in-lab Q's, abstract, & exp.