

Chem 51LB Experiment 5 Report Scaffold

Bromination of *trans*-cinnamic acid

Instructions

Report scaffolds are provided to help you learn how to write about the experiments you conduct. We began by providing general questions for each section and examples of specific questions connected to the current experiment. Last time you developed your own specific question for the introduction and theory sections. Now you will be responsible for providing your own experiment-specific questions and answering them for every section except the discussion section. General questions are still provided here for reference. For this assignment, you will do the following in a separate, single document that may not exceed a total of three pages (mechanism drawings may be attached at the end of your document and do not count toward the three page limit):

--Label each section of your document with the appropriate heading (i.e. introduction, theory, results, etc.)

--Number your specific questions for the introduction, theory, results, and conclusion sections with **letters** (i.e. A, B, C, etc.).

--For the discussion section of this assignment, answer the specific questions provided, using the numbering given in this document.

--Use complete sentences in the third person passive voice, but keep the general questions in mind when answering the specific questions (including the ones you develop) for every section.

An example of the layout required is provided on Canvas.

Unless the rubric specifies otherwise, all responses should be included in the body of your report submission and count toward the page limit. This includes results tables. Check the rubric for the assignment that tells you what to include. All other materials (i.e. mechanisms, calculations, images) may go in the appendix and do not count toward the page limit.

Post-Lab Report Format: MUST BE TYPED IN WORD OR A SIMILAR PROGRAM, NOT AN ELN PAGE! Times New Roman; 12 pt. font; double spaced; 1" margins; no more than 3 pages; use 3rd person passive voice only (*For example, "We dissolved the white solid in 10 mL of hot water," should be written as, "The white solid was dissolved in 10 mL of hot water."*). Include your name, student ID number, and lab course code. This format is **NOT OPTIONAL** and TAs will return work as unsatisfactory if the format is not followed.

Purpose/Introduction

General Questions:

What were we trying to accomplish with this experiment? How did we plan to accomplish this? The purpose of an experiment is not simply to introduce a student to a technique or reaction!

Theory:

General Questions:

Assume you are writing for another student who has taken organic chemistry before but might have forgotten some of the details of reactions and lab techniques. What information about the reaction and techniques being used in this experiment would you need to remind them of to make sure they understand what you did, why you did it, and what the results mean? Attach any mechanisms to the appendix of your report scaffold.

Results

For your post-lab assignment, you will use and present the data provided to you by the data quiz on Canvas. This data will be different to that recorded from experiment videos and used for your in-lab assignment.

General Questions:

What important data were obtained in this experiment? The data provided in this section should relate to the purpose(s) of the experiment, but you do not need to point out the connections here. Do not explain your results yet. Just provide them in an organized format. Don't forget to include any assigned unknown number! You should include a table to organize your data.

Discussion and Error Analysis

General Questions:

How do the data obtained relate to the purpose(s) of the experiment? How do you know the identity of the product and/or unknown? Do the results make sense? What conclusions can you draw from the data? What conclusions can you NOT draw from the data? (Note that although you are provided with distinct, individual questions here, sometimes the answers to these questions might overlap with each other. That's ok! In a lab report you would need to decide how to tie these answers together.)

Experiment Specific Questions:

1. *What product(s) did you obtain, and how did you decide that was the product(s)? Use your data to build an argument for your conclusion! If your data is inconclusive, why? Do the data allow you to eliminate possible mechanisms? If so, which and why?*

2. *Do the product(s) you identified allow you to eliminate possible mechanisms? If so, which and why?*

3. *Does the recovery of your product make sense? If the recovery is high (>100%), why could it be? If the recovery is lower than 100%, why might this be? Was there a large amount of product lost in the recrystallization process? Was the lost mass attributed to separation of an impurity? If so, how do you know this? Avoid discussing mechanical errors unless they were significant. Remember that matter is neither created nor destroyed. You might not be able to say with certainty but you can hypothesize. How would you test your hypothesis with an analytical technique? What results from your test would support your hypothesis? Why is it important to resolve this error?*

Suggest a fix to the error and provide potential evidence to support the claim that the error occurred and affected your results.

4. *Do your melting point data make sense? Was the melting point of the product you obtained higher or lower than expected? If so, what might explain this? As mentioned above, you might not be able to say for sure, but you can certainly hypothesize and provide ways to test your hypotheses.*

Suggest a fix to the error and provide potential evidence to support the claim that the error occurred and affected your results.

Conclusions and Future Experiments:

General Questions:

How would you summarize your results and analysis in 1-2 sentences? In other words, what is it that you want the reader to remember after having read your paper?

What questions remain unanswered? What questions were raised by your results and analysis? What further experiments could you perform to further investigate this reaction?