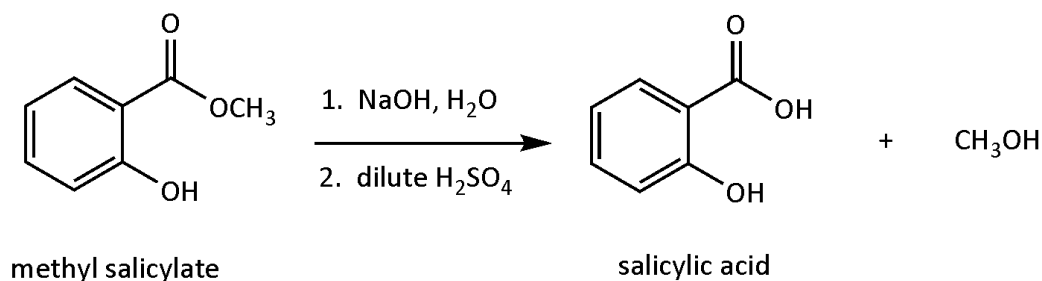


Saponification of Methyl Salicylate: Synthesis of Salicylic Acid Full Report Requirements



To Complete the Experiment – Full Report

Record your final crystallized yield in grams and the final melting point of your product in your notebook. Also note in your notebook, the calculated percent yield – (grams of purified salicylic acid)/(grams theoretical yield) x 100. Turn in your final purified salicylic acid in a labeled vial (compound name, weight of product, mp, date, and your name). For your conclusion, summarize the results of your experiment and be sure to comment on the quality of your product – melting point compared to literature and appearance of the product (look up the entry in the Merck Index for a description of the solid compound).

Along with your conclusion, answer the following questions:

1. How many moles of hydroxide are required for each mole of methyl salicylate used in the saponification reaction? Explain.
2. What is the purpose of adding the sulfuric acid solution and why does the pH need to be adjusted to 2?

This experiment requires a full written and typed report. It will involve the following items (excerpts from the **Lab Report Guidelines and Notes**):

Cover Page has the Title, Authors, and Affiliation

Title

The title should be descriptive, but not too long (and is the same as used in your notebook) – it should be the same as the title given on the experimental handout.

Authors

Put your full name first, then any names of partners second (or third).

Affiliation

Indicate where you performed the experiment (e.g., Department of Organic Chemistry, Hauser Laboratory, University of Colorado, Boulder, Colorado, *or in your case*, Department of Chemistry, Organic Laboratory, Laney College, Oakland, CA).

Abstract

Probably the hardest part to write, the abstract is a concise statement that tells the purpose of the experiment, the essential elements of the procedure, and the results. The abstract is only one paragraph in length (and approximately five sentences). Consider writing this part last!

(A good reference for this is the *The ACS Style Guide. Effective Communication of Scientific Information*. Editor(s): Anne M. Coghill, Lorrin R. Garson. 2006 American Chemical Society)

Introduction and Background

Provide the background for the experiment that was performed. Discuss and show all aspects of the relevant chemical reactions – the expected products, side-products and maybe even another example from the literature (your textbook, or another book suggested by the instructor). Other items to discuss are the experimental conditions that are normally used for the type of experiment you are describing and potential methods to identify your product.

In this case, give some background about the saponification reaction – what is the typical procedure?

Show the chemical equation for the reaction – use ChemDoodle to produce “print-quality” chemical reactions and insert the graphic into your final report.

Experimental procedure

Provide a step-by-step account of the experiment the way you performed it. It should give all of the vital details necessary to be repeated by another person (i.e., somebody else should be able to repeat the experiment without having to ask you any questions). Save any discussion of the quality and quantity of your product for the Results section (below). Try writing the text in 3rd person (e.g., “The contents of the flask were heated...” instead of “I heated the flask...” or “The layers were separated and the organic layer was dried with sodium sulfate, then filtered...”)

Use the procedure given for this lab as the guide, but write it in the correct form – 3rd person, past-tense. If you deviated from the overall procedure (or the instructor added something), it should be noted in your notebook and reflected in your final procedure. Remember to write the procedure as if you already followed it – not as if you telling someone else to do it (like Pavia or your instructor does)!

Conclusions

Discuss the results of the experiment. Of course give the percent yield and data for the product (e.g., melting points) and any information used to identify the product. Did you get the product? How do you know it is the desired product? What are the limitations of your method of analyzing the product? What would you do differently if you were to repeat this procedure?

In this case, answer the two questions above and include right after the conclusion.

References

Provide all references to the experiment and the procedure used, including any modifications and the information used in your introduction, using the correct bibliographic format for each type of reference. (see: <https://owl.english.purdue.edu/owl/resource/747/06/> if you are unsure) Usually, your source will be your laboratory textbook, however give the full correct citation.

Final order of assembly:

1. Cover Page
2. Abstract
3. Introduction/Background
4. Chemical Equation
5. Procedure
6. References
7. Laboratory notebook pages

**Rough Draft of items 1-6 are due a week after the lab is finished.
Final version is due at the last day of class.**