

SYN

Name: _____

Partner's Name(s): _____

Lab Date: _____ Lab Instructor Name: _____

SYNTHESIS AND CHARACTERIZATION OF ASPIRIN—DAY 2 LAB NOTEBOOK PAGES

All purpose, procedure(s), and data/observations must be recorded in the lab notebook in pen with permanent, waterproof ink (black or blue). Pencils, markers, highlighters, and correction fluid (white-out) are not permitted. No information can be recorded elsewhere and transferred after leaving the lab. Lab notebooks can be digital or paper; you may write directly on the lab notebook pages in your lab manual or download a digital copy onto your electronic device and then write in it. Refer to the Guide for Success in the General Chemistry Laboratory section in the front of this lab manual for more detailed instructions.

- ⦿ **Before Lab:** Make sure to complete the Purpose and Procedure sections in your lab notebook pages.
- ⦿ **After Lab:** Upload your notebook pages to the appropriate Carmen assignment within 48 hours after the start time of your in-person lab session. If you used the notebook pages in your paper copy of your lab manual, you should scan or take photos of the pages. Do not remove them from your lab manual. Refer to the SYN Day 2 Notebook upload assignment in Carmen for more detailed instructions.

PURPOSE _____

Describe the what, why, and how of the experiment in bullet points or a few sentences. Consult the Expected Learning Outcomes and the procedure for the experiment to develop the purpose.

PROCEDURE CITATION _____

Chemistry 1610: General Chemistry Laboratory Manual, Fall 2025.; Weaver, T. A., Opoku-Agyeman, B., Fontes N. Da Silva, C., Welch, A. N., Stern, J. E., Wroblewski, R. A., Walter, C., van Helmond, A. Eds.; Van-Griner Learning: Cincinnati, OH; pp. 47–50.

PROCEDURE

DAY 2

PART D. TRADITIONAL SYNTHESIS

Write a summary or step-by-step procedure for this part of the experiment in the space below.

PART E. RECRYSTALLIZING CRUDE PRODUCT

Write a summary or step-by-step procedure for this part of the experiment in the space below.

CLEAN UP AND WASTE DISPOSAL

All chemical waste should be discarded into the class Chemical Waste beaker. You must fill in the Chemical Waste Disposal Form. Stir bars should be carefully washed with soap and water, then rinsed with acetone until free of all debris, and returned to your TA. Be careful not to let your stir bar fall down the drain. Notify your TA if this happens. Capillary tubes, 4-mL test tubes, and Pasteur pipets should be discarded in the Orange Glass Waste bucket. Corks should be thrown in the trash. After cleaning up, wipe down your work area with 70% ethanol spray and a paper towel. Wash your hands thoroughly after completing this experiment.

DATA AND OBSERVATIONS

SYNTHESIS AND CHARACTERIZATION OF ASPIRIN

DAY 2

Mass filter paper + weigh boat + dried product (g) _____

Melting point of dried purified product _____ °C – _____ °C

Observations:

PURIFIED MICROWAVE PRODUCT + $\text{Fe}(\text{NO}_3)_3$

DRAWING AND DESCRIPTION OF PURIFIED MICROWAVE SAMPLE UNDER MICROSCOPE

PART D. TRADITIONAL SYNTHESIS

Mass of clean weigh boat (g) _____

Mass weigh boat + salicylic acid (g) _____

Mass emptied weigh boat (g) _____

Volume acetic anhydride added (mL) _____

Number of drops of phosphoric acid added _____

*Calculated theoretical yield of aspirin (g) _____

CHARACTERIZATION OF CRUDE PRODUCT

Observations:

CRUDE TRADITIONAL SYNTHESIS PRODUCT + Fe(NO ₃) ₃	

PART E. RECRYSTALLIZING CRUDE PRODUCT

Volume ethanol used (mL)	_____
Volume water used (mL)	_____
Mass dry filter paper (g)	_____
Mass labeled watch glass (g)	_____
Mass filter paper + watch glass + dried product (g)	_____
Melting point of dried purified product	_____ °C – _____ °C

Observations:

PURIFIED TRADITIONAL SYNTHESIS PRODUCT + Fe(NO ₃) ₃	

*Indicates value is calculated.

CALCULATE THE THEORETICAL YIELD FOR YOUR SYNTHESIS. REMEMBER, THE ACETIC ANHYDRIDE IS IN EXCESS. THEREFORE THE SALICYLIC ACID IS THE LIMITING REACTANT. *SHOW YOUR WORK.*