

# STO

Name: \_\_\_\_\_

Partner's Name(s): \_\_\_\_\_

Lab Date: \_\_\_\_\_ Lab Instructor's Name: \_\_\_\_\_

## REACTIONS AND STOICHIOMETRY LAB NOTEBOOK PAGES

All 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 Procedure section 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 STO Notebook upload assignment in Carmen for more detailed instructions.

### PROCEDURE CITATION \_\_\_\_\_

*Chemistry 1110: Elementary Chemistry Laboratory Manual*, Fall 2025–Summer 2026.; Weaver, T. A., Opoku-Agyeman, B., Fontes N. Da Silva, C., Welch, A. N., Rundell, S. R., Stern, J. E., Wroblewski, R. A., Walter, C., van Helmond, A., Eds.; Van-Griner Learning: Cincinnati, OH; pp. 99–107.

## PROCEDURE

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### PART A. OBSERVATIONS OF SELECTED CHEMICAL REACTIONS

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

## PART B. DEHYDRATION OF COPPER(II) SULFATE PENTAHYDRATE

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

### CLEAN UP AND WASTE DISPOSAL

All excess reagents and products must be disposed of in the class Chemical Waste beaker. Rinse the casserole dish with distilled water, then wash with soap and water. Place the rinse in the class Chemical Waste beaker. Test tubes and Pasteur pipets should be discarded in the Orange Glass Waste bucket. Corks may be discarded 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

### REACTIONS AND STOICHIOMETRY

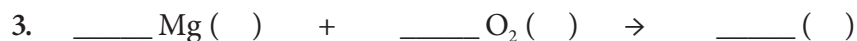
#### PART A. OBSERVATIONS OF SELECTED CHEMICAL REACTIONS

Fill in the missing information (coefficients, phases, products) in the chemical equations below. Record observations of the reactants and products in the box below the appropriate substance and indicate which chemical reaction type has occurred.



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Reaction type: \_\_\_\_\_



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Reaction type: \_\_\_\_\_



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Reaction type: \_\_\_\_\_



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Reaction type: \_\_\_\_\_



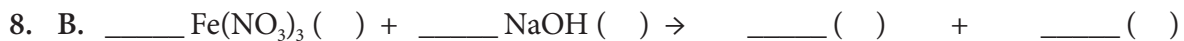
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Reaction type: \_\_\_\_\_



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Reaction type: \_\_\_\_\_



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Reaction type: \_\_\_\_\_

### PART B. DEHYDRATION OF COPPER(II) SULFATE PENTAHYDRATE

Mass of empty casserole dish (g) \_\_\_\_\_

Mass of casserole dish +  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$  (g) \_\_\_\_\_

\*Mass of  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$  (g) \_\_\_\_\_

#### OBSERVATIONS OF SOLID BEFORE HEATING

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#### OBSERVATIONS AFTER 5 MINUTES OF HEATING

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#### OBSERVATIONS AFTER 10 MINUTES OF HEATING

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## OBSERVATIONS AFTER 15 MINUTES OF HEATING

## OBSERVATIONS AFTER SOLID HAS COOLED TO ROOM TEMPERATURE

Mass of casserole dish +  $\text{CuSO}_4$  after heating (g)

\_\_\_\_\_

\*Mass of  $\text{CuSO}_4$  (g)

\_\_\_\_\_

\*Theoretical yield of  $\text{CuSO}_4$  (g)

\_\_\_\_\_

Equation STO.A

\*Percent yield:

\_\_\_\_\_

Equation STO.B

\*Indicates value is calculated.