

TITLE: **ORGANIC CHEMISTRY LABORATORY REPORT FORMAT**

PURPOSE

Roughly one paragraph which briefly names and describes the following: reactants, products, reaction, and special apparatus.

THEORY (PRINCIPLES)

Discuss the principles, as applicable, in detail for the following: reaction type and mechanism, separation and purification operations, and analytical methods. Include information from the reading assignment in the lab handout.

SUBSTANCES INVOLVED

Create a table that presents information about the reactants, products, intermediates, catalysts, solvents, and all substances involved. For each substance, provide a row with the name, formula, structure, molecular weight (MW), moles and mass (or volumes), and relevant physical properties, such as density and melting/boiling points (MPs/BPs).

REACTIONS AND MECHANISMS

Show balanced overall reactions. The mechanism refers specifically to the elementary reactions. That is, it describes the correct order in which all chemical bonds break and form. Where applicable, depict a complete reaction mechanism with all of the necessary step reactions. Include all line-bond (or skeletal) structures, as well as curved arrows for all electron transfers.

NEW TERM DEFINITIONS

Include complete and accurate definitions for all terms listed in the handout. Sources of information can include background information, procedure, handout, dictionary, etc. Do not include definitions for apparatus or specific compounds in this section. Place those accordingly in either the apparatus or substances section.

APPARATUS

List all of the apparatus involved with the experiment. Then, provide an original diagram and description of all new apparatus and instrumentation. Submit your own work only. Do not use any digital images other than that of your own lab station or diagrams. Provide labels and/or captions for all diagrams as well.

PROCEDURE OR FLOWCHART

Briefly describe the procedure. Include all of the important steps, but summarize as much as possible. List all quantities used, and note any special safety precautions or procedural considerations.

OBSERVATIONS

Describe what you observed during the lab exercise, particularly the chemical and physical changes that you witnessed. This can include formation and appearance of precipitates, crystals, or gases, as well as heat evolved or lost. Be observant and take notes during the lab, so that you can provide better descriptions.

DATA AND CALCULATIONS

Determine the moles of the [limiting reagent](#) using reactant masses and molecular weights. Then, determine the theoretical moles of the product using the stoichiometric (mole/mole) ratio. Convert these moles to the theoretic mass using the product's molecular weight. Determine [actual yield \(%\)](#) by dividing actual moles obtained by theoretical moles. Include melting and boiling points (MP/BP) if obtained analytically, as well as any test results, and interpretation of any spectrum or chromatogram. Compare results with reference materials, such as in lab manual, text, tables, or handbooks. Always refer to lab handout for other required data.

CONCLUSION

Summarize what was obtained and how. Interpret overall results of experiment in terms of the product's purity and characteristics, as well as the success of reaction and separation methods.

REFERENCES

List all sources of information used in report. Use proper reference format.

POST-LAB QUESTIONS

Normally five questions, 1 point each.