

Lab Report Format

General Guidelines:

The purpose of the report is to convey what you have done in a concise, organized, and easy to read fashion. Each lab report should include proper references for all procedures and chemical information.

Past tense should be used to describe what you did in lab. Present tense should be used for statements of fact and chemical properties. For example: "The melting point of unknown #12 *was* measured to be 109°C. The melting point of acetanilide *is* 114°C." Avoid using the first person and any statements of how you "felt" about an experiment, whether it was "easy," or the supposition that you "learned a lot" from the lab.

The attached lab report checklist, CLEAR graph description, and following outline of subject headings should help you submit an acceptable lab report.

Name
Section
Date

LAB TITLE

Introduction

- The introduction should include a discussion of why this lab is important, how it fits into the grand scheme of chemistry.
- The introduction is where you show that you understand the theory behind each operation (e.g., how can we make measurements using indirect methods?).
- The purpose of the lab should be clearly stated. Note that even though *my purpose* in having you do an precipitation lab may be "to help students learn how ions combine" the purpose of the lab should be reported as "to observe how ions combine in chemical reactions."

Materials and Hazards

- Include all chemicals used in lab by name and formula. If using a solution note concentration. Include any physical properties that may be helpful, any hazards of the chemicals and *all physical properties used later for calculations*.
- Do not list "irritant" as a hazard.
- Use a well-organized table.
- Equipment should be noted only when it is non-standard or where the workings could affect the results.

Procedure

- The procedure should contain all of the necessary details that one would need to achieve the same results and nothing more. The size of the reaction flask is often unimportant; the mass of reagent is essential.
- Your target reader is a competent student in a similar chemistry laboratory course.
- Use the past tense to describe what you did.
- Reference the lab description or text information.
- Be as concise and complete as possible!
- Include actual amounts of reagents used and a description and weight of products formed. [This information may need to be repeated in tabular form in the Data section.]

Data

- All data that you have collected in the lab should be listed in tabular format.
- Graphs should be in addition to tabular data and should be done using the CLEAR method (attached). The axes should be scaled so that the information can be clearly discerned (in general, the **data** in a plot should be, as nearly as possible, a full-page width and half page height).
- This section is for data and observations only. Do NOT include any discussion or evaluation of the results. This belongs in the discussion section.

Discussion

- Include a rationalization of ALL your results, a discussion of what you expected to find and possible reasons that this differs from what you really found.
- This is a discussion of your results NOT a discussion of your feelings about the lab.
- Justify any conclusions you are asked to make.
- Discuss any assumptions that you have made.
- Use specifics. Cite specific values from your Results section and compare them to specific known or expected values if available. [e.g., Don't say "the Oleic acid molecule is really small," instead say "Using the data from the experiment, the oleic acid molecule was found to be _____. This result is in error of the known size of the molecule by ____%. This difference may due to _____"]

Conclusion A sentence or two is often plenty for a short lab. It may state whether you confirmed a hypothesis or a concise statement of what you discovered.

Answers to Pre-lab and/or Post-lab Questions

- The questions at the end of each lab may be *neatly* handwritten on plain paper or typewritten.
- Be concise but show all calculations.

Graphing: the CLEAR method.

C - Cover the page
L - Labels Title (include Name – Date) Label x, y Units x, y Axis numbers
E - Evenly spaced units on axis Numbers on axis align w/marks
A - Accurate Data placement on graph from raw data Data-line match (when applicable)
R - Readable Neat Lines made with a RULER

RUBRIC		
CLEAR Graphing		
C - Cover the page	5	
L - Labels Title	3	
Label x, y	4	
Name - Date	3	
Units x, y	4	
Axis numbers	4	
E - Evenly spaced units on axis	4	
A - Accurate Data	4	
Data-line match	4	
Numbers align w/marks	4	
R - Readable – Neat	5	
Lines made with a RULER	6	
Extra Credit		
Total	50	