

Report Guideline for Experiment #2

Pre-lab Work is due at the beginning of the lab section. Refer to the laboratory syllabus for the due date for both the pre-lab and post-lab report. Both pre-lab and post-lab work **MUST** be written inside your LAB NOTEBOOK.

The procedure for this experiment is provided as a handout (NOT THE ONE IN THE MANUAL).

(I) On-line Technique Videos & Resources For This Experiment

Click on the title below to download the video (require [Real Player](#))

- (1) [Laboratory Safety](#) (this video was shown on the first day of the lab)
- (2) [Solution Preparation](#)
- (3) [Spectrophotometric Analysis](#)

If you have trouble downloading the videos, go to the following Web site and click on the appropriate title to download the video.

<http://oid.ucla.edu/Webcast/Chemistry/>

[Guides for Writing Lab Reports](#)

[Chemical Hazard Symbols](#)

[Beer's Law Tutorial](#)

[Serial Dilution Tutorial](#)

[Concentration Units Tutorial](#)

(II) Pre-lab Report Guideline

IMPORTANT: Make sure that you always follow the proper laboratory safety protocol (refer to the course syllabus) BEFORE going to the lab.

- (i) Title of the experiment
- (ii) Reference (i.e. complete reference of the experiment including title of the lab manual, author, edition and page number of the experiment in the manual etc.) Include any changes to the procedure that you know you will make.
- (iii) Short introduction (Summarize in a few sentences about the background and the goal of the experiment. Outline the kinds of technique that you will use in the experiment)
- (iv) Procedures (flowchart format)

- (v) Pre-lab study questions (MUST show ALL your work)
(complete ONLY #1,2,4,5 & 6 on page 4 of the handouts)

Note: For question 2, you may assume that for EACH dilution process, each piece of equipment can ONLY be used once and you can also assume that no combinations are allowed for the same kind of equipment (i.e. you don't need to worry about using the combination of a 10-mL and a 5-mL pipet in a single dilution process).

Note: The on-line resources listed above may be useful when working on the study questions.

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(II) Pre-lab Report Guideline (Continued)
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(vi) MSDS information

(Refer to the MSDS handout on how to use this resource on-line)

Look up the following properties for **Brilliant Blue FCF**

Note: for this compound, use the CS ChemFinder Web site (refer to the MSDS handout for the Web address)

You should record the following MSDS information in your notebook.

(Printouts directly from the Web pages will NOT be accepted!!)

- (a) Product Name
- (b) Chemical Formula
- (c) Formula Weight
- (d) Melting Point; Boiling Point and Density
- (e) Health Hazard Data (**summarize in your own words**)
- (f) Spill and Disposal procedures (**summarize in your own words**)

Note: Not all information is available for this particular compound. Make sure you check all the links in the CS Chemfinder Web site. If a particular information could not be found, cite the URL address of the link(s) that you used to search for that particular information.

(vii) Data/observations (start a NEW page in your notebook for this section)

Note: *Start a NEW page in your notebook for this section. The previous material will be turned in at the beginning of the period; this page will be turned in at the end of the lab period (refer to item #10 on page 5 of the handouts)*

Report Guideline for Experiment #2

Refer to the laboratory syllabus for the due date of the post-lab work. Post-lab work **MUST** be written inside your LAB NOTEBOOK. The procedure for this experiment is provided as a handout.

Post-lab Report Guideline (This is a GROUP report)
(i.e. TURN IN ONLY ONE POST-LAB REPORT PER GROUP)

Useful definitions for the report:

w/v% is defined as weight (in grams) of solute / 100 mL of solution

ppm is defined as *mg* of solute / L of solution

ppb is defined as μg of solute / L of solution

Note: The Beer's law tutorial on-line resource listed on the first page of this report guideline may be useful to you when writing the post-lab report

(A) Data & Data Analysis

(i) Write out the name of each group member on your report as well as the individual responsibility when performing the experiment and writing the report

(ii) Set up a data table with columns for wavelengths you collected for your spectrum and the absorbances for the solutions you collected. Fill in the experimental data on the data table. At this point, you will only have data entries for one row and one column of the data table. You will fill in the rest of the data table later on in the report.

(iii) Description of the serial dilution procedure and rationale for the design of the dilution procedures

(iv) Calculate the concentrations (only *molarity*, *ppm* and *w/v%*) for **all** the solutions based only on the procedures that you designed.

(v) The value for the molar extinction coefficient for the Brilliant Blue FCF is reported in the literature (at 620nm) as $1.38 \times 10^5 \text{ M}^{-1} \text{ cm}^{-1}$. Using this value and the measured absorbances (at 620nm) you collected in the lab, calculate the experimental concentrations (M) for each of the 3 most diluted solutions. You may assume $L=1\text{cm}$.