

Matter and Minerals
Fall 2005

Chemistry Workshop
Week 3

*We will meet in Lab II, 1241 on Thursday of Week 3,
from 9 a.m. – 12 noon*

Prepared and Presented by
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Workshop Goals

- Learn to clean pipettes and burettes in preparation for analytical lab work.
- Learn to correctly read the volume of a liquid in a burette.
- Learn to accurately draw the required amount of liquid using a pipette.
- Learn to accurately prepare solutions of desired concentrations using volumetric glassware.

Since this is a skill building workshop, each activity must be done individually.

Part I:

Following directions given in the laboratory, clean and fill a burette with water up to the 0.00 mL mark. Call an instructor to check out the accuracy of your work. The instructor will ask you to take 3 different burette readings. When you have accomplished this correctly and recorded it in your workshop folder, you can move to the next activity.

Part II:

Clean a 25 mL pipette and a 10 mL pipette following instructions given in the laboratory. In your workshop folder, write down the purpose of using this pipette.

Part III: You must complete Part II before starting this activity.

Using your clean 25 mL pipette, take 25.00 mL of the red colored stock solution into a pre-weighed beaker and determine the mass of the liquid you pipetted. Use an analytical balance. Recall how to weigh a liquid (from on your last lab).

If you did this correctly, the mass should be 0.9933 g/mL. Determine your percentage error. If it is higher than 5%, repeat the experiment. Continue to repeat until your error is within the accepted range. Keep records of all your work in your folder.

Part IV:

Clean a 250 mL volumetric flask following directions given in the laboratory.

Part V: You must complete Parts II, III, and IV before starting this activity.

Using the 25 mL pipette you cleaned in Part II, pipette out 25.00 ml of the green colored stock solution into the clean 250 mL volumetric flask. Following instructions given in lab, make a solution up to the mark of the volumetric flask with distilled water.

Clean a cuvette using distilled water. Using a Pasteur pipette to transfer some of the above solution into a cuvette and rinse the cuvette. Following instructions given in class determine the absorbance of the solution you prepared. The concentration of your solution is 10%.

Use the following data to plot a “calibration curve” of concentrations versus absorbencies on a graph paper (provided). Do not use your own graph paper. Once the data is plotted, draw a “line of best fit” through the points. Then, plot your data point (concentration of your solution versus the absorbance you obtained for it) on this graph. See if your data point is

within acceptable range. If not, repeat the process until it is. When you are done, you can discard the solution in the volumetric flask down the drain.

Pipette 10 mL of the green colored stock solution into your clean volumetric flask and make up to the mark with distilled water. Determine the absorbance of this solution. The concentration of this solution is 4%. Plot the absorbance versus concentration of this solution on the same calibration curve and see if your data is within the accepted range. If not, repeat the process until it is. When you are done, you can discard the solution in the volumetric flask down the drain.

DO NOT LEAVE THE LAB UNTIL ALL YOUR WORK IS CHECKED BY THE INSTRUCTOR.