

Report Guideline for Experiment #5 (Detergent Experiment)

Pre-lab is due at the beginning of the lab section. Refer to laboratory syllabus for the due date of the post-lab report. Pre-lab and Post-lab **MUST** be written inside your lab notebook (with the exception of graphs)

(I) Pre-lab Guideline

(I) Introduction

(II) Procedure in Flowchart Format & reference of procedure

(III) MSDS information (**refer to the MSDS handout for details**)

The following chemicals will require you to use the MSDS database on the Web (see Lecture Syllabus):

HCl (3M), NaOH (0.5M) and Phosphoric acid (H₃PO₄) (1M)

Note: In MSDS, select the site that gives you the MSDS information closest to the concentration listed above for each individual chemical.

You should record the following MSDS information in your notebook for the chemicals listed above.

(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**)

(IV) Complete all the study questions # 1-3 on page 64. Follow instructions on p.64 (under "Pre-lab assignment") of your lab manual.

(Make sure that you separate the blank data table with the rest of the prelab)

Report Guideline for Assignment 5 (Detergent Experiment)

Post-lab MUST be written inside your lab notebook (with the exception of graphs)

(II) Post-lab Guideline

This is a GROUP report (i.e. ONE REPORT PER GROUP)

(A) Data

- write the responsibility of each group member during the experiment and in writing this report
- recopy completed data tables (including the color change of the universal indicator) from your prelab to the postlab report (see p.65-66)
- specify the unknown detergent label on your report (i.e. unknown C or unknown T)

(B) Data and Error Analysis (MUST SHOW ALL WORK FOR FULL CREDIT)

- determine the volume of NaOH required to titrate one equivalent of the H_2PO_4^- (see p.66)
- calculate the number of equivalents of phosphate in your detergent sample
- calculate the weight of the detergent that can be attributed to phosphate (PO_4^{3-})
- % phosphate in the original detergent sample
- % STPP in the detergent sample

(C) Conclusions

- summarize results
- compare % phosphate in detergent with %STPP. What can you conclude?
- possible sources of systematic errors (see p.66)