

## Chem 107B - Iron Analysis - Report

Each person in the course is required to submit an individual report on the iron analysis experiment. The report must be turned in by 4:00 pm on Friday, October 26. Turn lab reports in at the second floor Stockroom. I do realize that you will be discussing your results with other people in your groups. That is not only expected, but encouraged. The report, though, is to be your own individual document reflecting how you choose to describe the work you have undertaken over the semester. As such, I expect that each member of a particular group will submit a unique document that might have considerable differences in style and the manner in which data is presented and discussed. The report is to be patterned after scientific journal articles. It should be comprehensible to other students with a semester of college chemistry. There is no length restriction, however the report should be concise, yet complete.

The report is to be a typed, double-spaced, size-12 font or larger.

The report should contain the following sections:

1. Title

2. Abstract: The abstract consists of a short paragraph containing a brief description of the focus of your experiment, a short statement describing in general terms the results obtained, and any major conclusions of your study. The abstract should only contain statements about what you did, how you did it, and the results obtained. It should not be longer than one page.

3. Introduction: The introduction should include a section justifying the work that has been done and explaining why the work was important to perform (why it is important to examine the possibility that acid rain mobilizes metal ions). Any relevant background literature that either is important to the overall question we were investigating or helped you in designing particular aspects of your portion of the investigation is described in this section.

4. Experimental: This section should include a thorough description of all procedures that were followed in designing experiments and collecting samples and data. It should contain complete descriptions of equipment or apparatus that were used, detailed procedures for preparing solutions, thorough descriptions of how samples were obtained, and procedures for workup and analysis of data. A common mistake that is made in this section is the omission of important details that another person would need to replicate the experiment. You almost cannot be too thorough in reporting your experimental details. Another common error is for the writer to start reporting results or conclusions in this section, or to start explaining why a particular experimental protocol was used. These types of discussions belong in the Results and Discussions section. The Experimental section is essentially a cookbook (although it is not written as an itemized list of procedures, but written in a textual form) that describes to anyone else how to perform an identical experiment to what you have done. This is an important section in a scientific paper because it is critical to anyone else who wants to repeat the work.

5. Results and Discussion: This section is usually the major component of a report. The results of your work are to be communicated in an organized manner, and the significance of your results are to be discussed. The following items are usually included:

a) Data: Relevant primary data should be included. This may best be done in the form of a table or figures with appropriate reference and discussion in the text.

b) Calculations: Any calculations performed in the workup of data should be explained in the report. Show appropriate equations making sure all terms are explained in the text.

c) Tables: Tables of data are set off on their own page. Tables are given titles and are numbered consecutively. Tables must be referred to and discussed in the text.

d) Figures: Figures are set off on their own page and numbered consecutively. Each figure is described by a caption that appropriately describes the figure. Each figure must be referred to and discussed in the text. A common error for many first-time writers is to provide figure captions that tell too little about the figure.

Any conclusions that can be drawn from the data must be stated and supported by a discussion of the data. If the data appears flawed in some way, thereby preventing definitive conclusions from being drawn, this should be discussed. A common error in these reports is for the writer to overstate the degree to which a conclusion is valid. This section should also include discussions of your experimental protocols; why you chose to perform the experiment the way you did and what you would retain and change if you were to continue the work.

This section should also contain a description of any future work that would be done should you continue this project. What would be done to obtain better data with a higher degree of reliability. What experiments would you have performed if you had the time? Is there equipment that would have helped in the execution of your project?

6. References: Any information that is used in the report but obtained from another source (text, journal article, etc.) should be referenced.