

## LAB REPORT

**Goal:** Science is communicated through papers published in scientific journals. A certain concise style has evolved, and I want you to learn this type of writing between this report and the summary report for lab 6-9 due at the end of the semester. This lab report is a practice run, you will receive feedback from me "risk free", as the report will not receive a grade.

**Content:** Write only about your "unknown", not your practice runs.

### 1. Prose

This lab report is a chance for you to practice writing a brief science paper. It should be mostly text, with some chemical equations sprinkled in where needed. In contrast to an English paper, try to use as few words as possible, use the most precise and concise phrase to describe what you want to say (even if you had just used the same word in the previous sentence). If you can cut out a word without losing the meaning of the sentence, please cut it out.

### 2. Observations vs Conclusions

One main purpose of this report is to practice the separation of observations and conclusions. "A white precipitate confirmed the presence of  $\text{Ag}^+$  ions" ties both into one sentence while still keeping them separate. List all your observations along the way as well, even if they are not the final specific test, such as if a brown or a green ppt occurred in the Ni/Fe separation from Al/Cr. These observations are important clues along the way.

### 3. Purpose of steps vs a mere list of steps

Help the reader along. Interpret the significance of each step instead of just listing the reagent added. "The solution was acidified with HCl" is more informative than "I added HCl". Similar: "The solution was buffered with acetic acid and sodium acetate".

### 4. Past Tense?

Whatever you prefer, past or present, but please stick to it.

### 5. Passive vs active voice

Active voice sounds more engaged, you actually take responsibility for your actions, so it is usually recommended. Passive voice is sometimes easier to write, but in most cases a better sentence can be constructed with active voice. Give it a try

### 6. Phrases

Avoid starting the introduction with "The purpose of this experiment was to..." Be creative. Explain why your experiment will save the world from doom. Avoid "Then I ...". It's equally tempting, but makes for a boring style.

### **7. Online help**

If you have a few extra minutes, read the article under handouts > lab report help > Scientific Writing. It's worth the time. It explains how to write a step-by-step description in a flowing style. There is also a Qual example report online. Please do not try to follow this report closely, rather use it to get some ideas - but then throw it away. Please develop your own style. The other help files do not apply that well to this report, they are more geared toward the second full report you will write later in the year.

### **8. Organization**

Check the manual (p. 21) for guidance on the purpose of each section.

Separate your report into sections: Abstract, Introduction, Methods (Experimental section), Results and Analysis (here: Results and Conclusions), Discussion, and References.

An abstract at the beginning, listing the ions you found, will help you to avoid a "mystery novel" style (the unknowns do not have to remain unknown).

### **9. I or We or passive?**

There is nothing wrong with using "I", but in Physical Chemistry, as well as in other areas in Chemistry and Physics, we do not use first person singular. Some people prefer "we", to indicate group work and "one" to stress personal work, some people prefer passive voice to avoid the discussion all together. See active vs passive above about the latter.