## GUIDELINES FOR WRITTEN REPORTS

**Manuscript-level Report**

12-15 pages, intended to be suitable for submission to a journal published by the American Chemical Society. Follow the format of the **sample report** included in your handout "Mixed-Valent Complexes of Manganese".

**Short Report**

6 pages.

Provide an Abstract in an uncounted cover page

## **Plagiarism-free referencing of the Literature**

The following sentence begins a paper by Balch, *et al*, *J. Am. Chem. Soc.* **2002**, *124*, 2327:

Gold (I) complexes typically are colorless, two-coordinate species that readily self-associate to form dimers, trimers, and extended chains connected by Au ••• Au contacts that are less than the van der Waals separation of *ca* 3.6 Å. [1-3] {*references 1-3 give the authors' literature-based support for their statement*}

Suppose that you are writing a report or paper on a subject that is somehow related to the above statement in the Balch paper, and you want to include this information in your document. How do you do so with integrity, so that the reader knows the basis of your statement or claims? Here are some possible approaches with a comment on the ethical aspects of each:

If, in your paper, you:

(i) repeat the sentence without giving reference to either the Balch paper or to the literature references: this is **plagiarism**

(ii) repeat the sentence but give reference to Balch paper: this is **plagiarism**

(iii) repeat the sentence and put it

**WRITTEN REPORTS:**

General considerations. The best report is one in which the experiment is described fully but concisely. It takes good judgement to know what should be included and what may be omitted. The length of the report is guided by whether it is in the class of MS (12-15 pages), Short (6 pages), or Abstract (2 pages) form. The text length is separate from pages used for figures and graphs. Include actual experimental curves (e.g., spectra) whenever appropriate. You may submit photocopies of original data. Label any experimental data and spectra with appropriate information about compound, condidaEon or ioame on t in

## GLASSBLOWING TUTORIAL

Instruction in glassblowing is provided in the Glass Shop (Cook A213) by the Department's resident specialist, Angie Gatesy. Her tutorials serve as a basic introduction to scientific glassblowing and include two intensive sessions which will be scheduled in either 8:00-10:00 AM or 1:30-3:30 time slots. It is up to you to schedule your times with Angie, but make sure to do so *early* in the semester before you get too busy. The glassblowing tutorial must be completed **prior to Thanksgiving recess**.

The following course description has been provided by Angie.

Session 1

Glass shop orientation, including torches and how to safely cut glass
Straight seals and bulbs
T-seals
Fire polishing
Introduction to polariscope and to annealing

Session 2

Ring seals
Fire cutting
Test tube ends
Bending glass
Construction of a bubbler or trap

Safety in the glass shop is a major concern and must be one of your learned 'skills'. The opportunity exits to burn or cut oneself. **Hot glass looks like cold glass** and stays hot longer than one would expect.

Glassblowing is a skill which is developed over time. While this general introduction attempts to teach basic skills, it in no way can be assumed that glassblowing can be perfected in this short course. At the end of this tutorial, you should be able to determine what a safe seal looks like, to make basic repairs should the need arise, and be more aware of the problems and restrictions faced by expert glassblowers when you design a new experimental system.

# Preparing for Individual Experiments

Preparation of Nickel Group Dithiolates

Before doing this experiment, review the

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Solution Magnetic Properties (included even though we are not physically doing this experiment in 2014)

For the ESR section, you need to review the basic ideas behind the experiment (SR reference 10), including the approximate values for the frequency of the microwave radiation and the strength of the magnetic field that are used to accomplish the resonance. Review the relation between metal formal oxidation state and d-orbital count to know which metal dithiolene complex can be expected to be paramagnetic. You will be measuring the spectra of complexes containing Ni, Cu, and Pt nuclei. **For each of the metals, know which of the naturally-occurring isotopes of each metal have non-zero values of I, and be aware of the % natural abundance of each of those isotopes.** Compute the expected relative signal intensities for the I = ½ spin vs the I = 0 spin for the Pt complex. You can find nuclear information in books on magnetic resonance or in the CRC Handbook of Chemistry and Physics. Be prepared to answer questions about how many lines, including hyperfine lines, are expected in each of the spectra.

For the Evans NMR method, review the references given in your Selected References handbook (refs 11 and 12). Know what the approximate value of $_{eff}$ is for a spin-1/2 system. You can find this in books on P-chem and advanced inorganic.