

CHM 130LL: Lab Organization and Safety Update

Preparation for Lab

You are required to read the experiment **before** coming to lab. If the lab equipment is unfamiliar to you, read the “Lab Technique” section. At the beginning of the lab period, the instructor will demonstrate the use of new equipment and answer any questions you might have. Students who arrive after this explanation has been presented will not be allowed to complete the experiment. Absolutely no lab work is to begin until the instructor has completed his/her explanation.

Safety Goggles

Students are required to bring their own safety OSHA-approved **splash-protected goggles** to each lab. **Safety glasses are not acceptable!** You can keep your goggles in a locked drawer in lab for the entire semester.

Equipment

Most of the equipment you will use is shared by several other classes of students. The first thing you should do when you enter lab is to check the equipment at your lab station and make sure everything is clean and in good condition. If any equipment is missing or dirty, notify your instructor. (The instructor from the previous lab will be notified, and repeat offenders charged.) It is your responsibility to clean and check your equipment and work area before leaving lab. Report breakage to your instructor. You will pay for equipment you break; most items cost \$2.00 or less.

Computers

You will use computers in the adjacent room for this course.

Unknowns

Some experiments use special equipment or unknown chemicals. These are obtained from your instructor. Each unknown should have the individual unknown number on the label. Print your name on the signout sheet in the first empty space, take the next unknown—be sure to take them **in order**, and indicate the unknown number next to your name. When you return to your lab bench, record your unknown number on your lab report sheet. Dispose of any unused unknown chemicals in the proper waste container. Return the unknown empty container and special equipment to the instructor’s station and initial the signout sheet.

Waste Handling

A few common non-hazardous chemicals may be discarded down the drain, but most of them require special disposal in labeled waste containers. **Do not discard solids** (pieces of metal, filter paper, etc.) **in the sinks**. Dispose of broken glass in the properly labeled waste containers. Be sure to check the “Waste Disposal” section for each experiment.

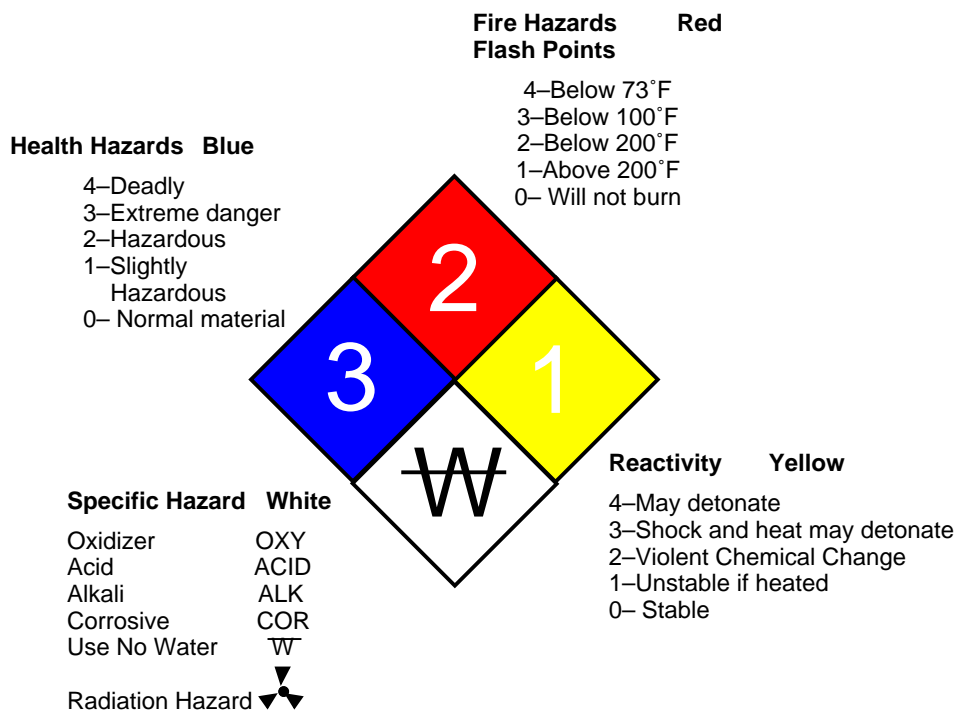
Lab Reports

Individual experiments consist of pages of lab directions and pages for your report. You are to complete and turn in the report pages before the end of the lab period. Be sure your name, section number, partner (if any), and unknown number are on the report.

Makeup Labs

A lab may be made up **only** with the permission of the instructor and **only** during the week it is scheduled.

Section I: Safety Labeling of Reagents



Each label consists of 4 lines, as well as a space for special personal protection required for handling the chemical.

The 3 colored lines are used for a numbering system to indicate the relative hazard of the chemical in 3 different areas: **Health, Flammability, and Reactivity**. The numbering system in each area ranges from **0 (least hazardous) to 4 (most hazardous)**. A detailed explanation of this national rating system is found on the wall chart in the lab, but a summary is given below.

Blue: Health

A high number here indicates a health warning, but the exact nature of the problem is not identified. We couple the blue health coding with a specific warning hand-lettered on the white space above the blue line. We use 4 specific areas of health warning:

Contact Hazard

Try not to get on skin. If spilled on skin, wash off with lots of water. Rinse hands after use.

Be sure that goggles are covering the eye area. If any chemical reaches eyes, use eyewash for 15 min (both eyes open).

For severe hazards, aprons may be required.

Inform instructor of spills, follow cleanup instructions.

Eye Hazard

A special case of contact hazard where even prompt use of eyewash may not eliminate eye damage. Double check goggles!

Respiratory Hazard

Do not breathe vapor! Do not attempt to smell chemical. Some respiratory hazards affect throat, mucous membranes, and lungs; others affect other internal organs or the central nervous system.

Dispose of all respiratory hazards by placing them in waste bottles in the hood. Wash the very small amount remaining in the container down the drain **in the hood**.

Severe respiratory hazards must be dispensed and used in the hood. Assume all respiratory hazards a threat to unborn children. Check with the instructor for each individual chemical.

Poison

Wash your hands after use. Failure to do this may result in contaminated food.

Carcinogens

Cancer causing agents are a special case of any of the above health areas and labeled as such. Use gloves and extra care in handling to avoid spills. Use the minimum amount of chemical necessary, and follow cleanup and disposal directions posted for each carcinogen.

Red: Flammability

A high number (3 or 4) here indicates that the material catches fire easily, and should be kept away from bunsen burners. The "4" rating is used for chemicals that catch fire **extremely** easily, even with an electrical spark or the heat from a hotplate. Check to see that no bunsen burners in the entire lab are lit when using a chemical with a "4" rating. (Even chemicals rated 1 or 2 will burn, but require higher temperatures to do so.)

Yellow: Reactivity

A high number here indicates that the chemical reacts with other materials in a hazardous manner (causing fire, heat release, spattering, etc.) The reactions are varied, and your instructor will give you details. Be sure to dispose of any chemical with a high reactivity rating according to directions in the lab writeup.

For Further Information

You may obtain a list of the chemicals used for the semester from your instructor. If you are pregnant, immune system compromised, or have other health problems, you should discuss chemicals on the list with your physician. By law, chemical manufacturers are required to provide a Material Safety Data Sheet (MSDS) for each chemical shipped to us. As far as we have been able to obtain them, the MSDS for each chemical you will use is on file in binders in the storeroom. You may read them and/or obtain copies upon request. (We also have a booklet to help you make sense out of the MSDS.) If we have not as yet received the MSDS for a chemical you will be using, your instructor can locate safety information on it.

Section II: Comments about Personal Protection

Eye protection: By law, students taking the course are required to wear eye protection. However, chemicals may still enter the eyes in several ways:

If your eye protection leaves gaps between the goggles and your face, a splash of chemical may enter even a small unprotected area and damage your eyes.

Never rub or touch your eyes when working with chemicals as the chemicals on your hands may be transferred to your eyes.

Fumes may travel through the air vents in your goggles to your eyes.

If your eyes itch severely or burn, use the eyewash immediately. Remove contact lenses and flush eyes with water—both eyes open—for 15 minutes.

Contact lenses are not recommended for lab. If chemicals do enter the eye, they migrate between the lens and the eye. Also, contact lenses are sometimes difficult to remove in an emergency situation. Our advice is that if you have regular glasses, wear them. If you do not, have your instructor carefully check the fit of your goggles, and keep your hands away from your eyes.