

GENERAL CHEMISTRY LABORATORY SAFETY

1. **Read** the experiment before coming to Keyes 405. The more prepared you are, the safer and more efficient you will be in lab.
2. Think about what you need to wear to lab before you come to your lab. **No sandals** are allowed because your feet need a protective cover over them in case of spills or excess heat. Arrange long hair so that it won't be accidentally burned, pulled, or fall into chemical containers. **The wearing of contact lenses in the lab is not recommended**, even when wearing safety goggles. Contact lenses do not provide adequate eye protection, and in some cases may complicate or create an emergency situation. For example, caustic liquids splashed into the eyes may form a liquid layer beneath the contact lens; the eyewash will not rinse out the caustic liquid adequately unless the lens is removed. Also, some organic compounds can actually dissolve or be absorbed by the contact lens.
3. All coats and backpacks are to be left in the hallway, outside of the K405.
4. Drinks, food, candy, and **gum** are not allowed in K405.
5. Personal electronic devices are allowed but only as a tool to complete lab work.
6. No one is to start lab work early. All students begin together upon completion of lab instructor's introductory remarks. You may only work in K405 with authorized supervision.
7. The chemicals needed for each experiment will be made available in your work area as needed. Several of the substances used in this laboratory are hazardous, but when used properly and with caution, exposure is avoided. All chemicals will be marked with appropriate hazard labels. If you follow the directions given in writing and verbally during introduction, the chemicals pose no threat to your health.
8. In the case of an accident, **report any spills or breakage** to your instructor at once, so that the appropriate safety measures can be made. Do not attempt any chemical clean-up on your own. The instructor will determine immediate corrective measures.
9. In the case of a **fire** involving your clothing/hair use the procedure called **STOP-DROP-and ROLL**. **STOP** what you are doing; **DROP** to the floor, and then **ROLL** over and over to extinguish the flames. Do not run to the fire blanket or safety shower if on fire, STOP-DROP-and ROLL first. Someone else will get a fire blanket to further assist you.

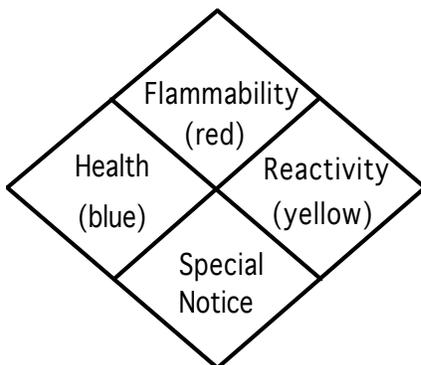
SAFETY RULES for everyone working in the general chemistry lab:

1. Put on safety glasses as soon as you come into K405. They have to be worn the entire duration of lab time! Even when you have finished your experiment, keep the glasses on. Other people around you will still be working. Even if you come by to ask some questions at some other point, grab your glasses and put them on.
2. Keep your face well away from reactions. Never watch heating solutions from above; look instead from the sides of the container.
3. When smelling the odor of a liquid, do not put your nose or face directly over the container. Rather, fan a little of the vapor toward you with your hand. This will protect your nose and lungs from potentially strong smells and harmful vapors.
4. Avoid breathing dusts and vapors. Keep powders in covered beakers and work with volatile liquids in the fume hood.
5. Wash away solutions splashed onto your skin by flushing with lots of water and notify your instructor. Large corrosive spills on clothing may require use of the safety shower. In such a case, ask for help. The instructor will assist with all contaminated clothing (while you are under the shower). Go to the nearest eye wash station if solution has been splashed into your eyes. Rinse for 10-15 minutes.
6. When diluting concentrated acid, add the **acid** slowly **to** the **water**.
7. Label any container to which you added chemicals. No beaker should be unlabeled.
8. Transfer reagents needed for your own use into a container to measure from, taking only about what you need. Never return reagents taken out of the original container back into the original source.
9. All waste will be collected in appropriately labeled containers provided for you in K405. It is illegal to flush many substances down the drain. Ask if you don't know where to put your leftover substances.
10. When your work is completed, **clean your work area**. **Clean used glassware** before putting it away. **Return borrowed items** in better condition than originally found. **Wash your hands** before leaving lab.
11. Use common sense. Practical jokes, unnecessary noise, loud music downloaded from the WEB, or other distractions are not acceptable. For your protection all safety rules need to be enforced.
12. Do not remove any equipment or chemicals from K405. Taking materials designated for lab use not only inconveniences other students and increases lab costs, it can also lead to safety issues on the campus.
13. Gloves are provided for handling specific reagents in K405. When required for an experiment you will be instructed on proper use/disposal of gloves.

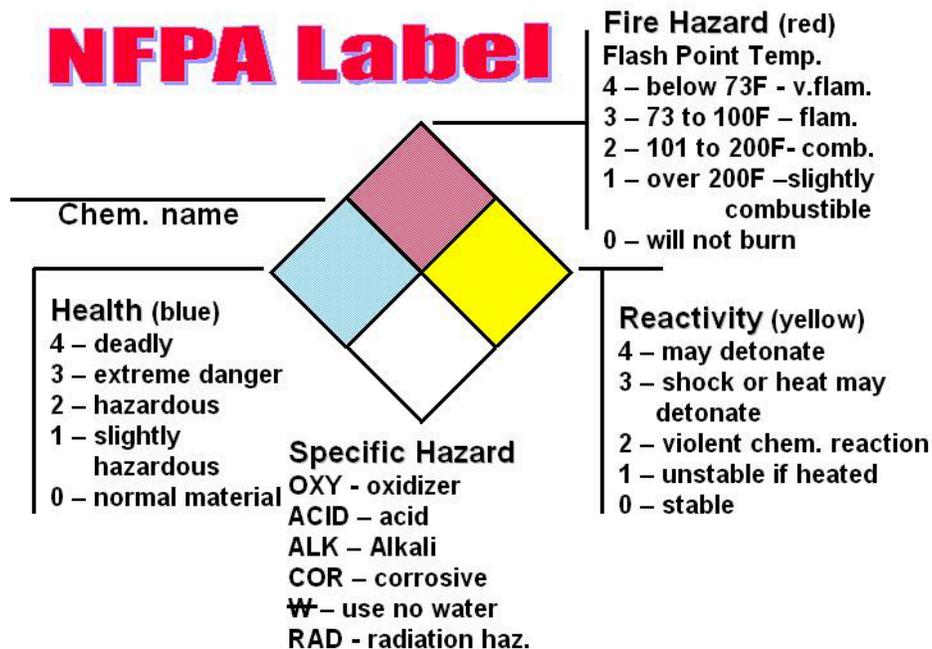
MORE INFORMATION: MATERIAL SAFETY DATA SHEETS

The Hazard Communication Standard gives workers the right to know the hazards to which they are exposed. In compliance with this standard, Material Safety Data Sheets (MSDS) are found at <http://www.colby.edu/humanresources/environmental-health-and-safety/colby-msdssds/> for chemicals you will be handling. Each posted MSDS document includes the name of the chemical (or components of a mixture), common names, physical and chemical characteristics, fire and explosion hazard data, reactivity data, health hazards and precautions for safe handling of that substance.

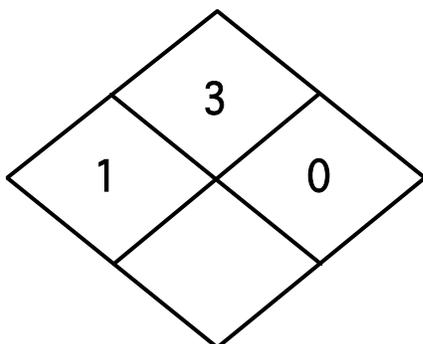
Every chemical provided to you to work with in K405 has a NFPA (National Fire Protection Association) label to give you the chemical name, along with specific health, flammability and reactivity hazards. The label also includes specific hazards unique to that chemical (oxidizer, water reactive, etc.). The diamond on some bottles indicates these hazards also:



The numerals in the boxes of the diamond indicate the severity of the hazard with “0” indicating little or no hazard and “4” indicating severe hazard. For example, acetone (the major component in nail polish remover) has the ratings:



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The health rating of 1 means acetone can cause some irritation, but only minor residual injury. The fire rating of 3 means acetone is flammable. The reactivity rating of 0 indicates that acetone is stable under a variety of conditions, including exposure to water.

LABORATORY SAFETY MAP

During your first lab meeting, you will be reminded of the safety resources (you mapped in your CH141 lab notebook) available when you work in K405.

shower

exits

eyewash stations

fire extinguishers

first-aid kit

phone

fire blanket

glass disposal boxes