

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. Completion of the pre-lab preparations will help you understand what you will be doing before your scheduled lab.
2. Think about what you need to wear before you come to work in lab. **No open-toed footwear** is allowed because your feet need a protective cover over them in case of spills, broken glass, 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.
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. Use common sense. Practical jokes, unnecessary noise, loud music, etc. are not acceptable. **You may not use headphones in the lab or sit on top of lab benches.** Mobile phone conversations and texting are not allowed in the laboratory. **Remove gloves** before using any device, such as a phone, computer keyboard, or calculator, to minimize contamination of that device.
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. 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 time, grab your glasses and put them on.
8. 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 potentially hazardous, but when used properly and with caution, the hazards are minimized. 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.
9. Keep your face well away from reactions. Never watch heating solutions from above; look instead from the sides of the container.
10. Avoid breathing dusts and vapors. Keep powders in covered beakers and work with volatile liquids in the fume hood.

11. 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.
12. 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.
13. 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, STOP-DROP-and ROLL first. Someone else will get a fire blanket to further assist you.
14. When diluting concentrated acid, add the **acid** slowly **to** the **water**. **Not** the other way around.
15. Always label any container to which you added chemicals (even if it is water!).
16. 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.
17. 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 the waste generated from your experiment.
18. 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.
19. 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.
20. Gloves are provided for handling specific reagents in K405. When required for an experiment you will be instructed on proper use/disposal of gloves.

LABORATORY SAFETY MAP

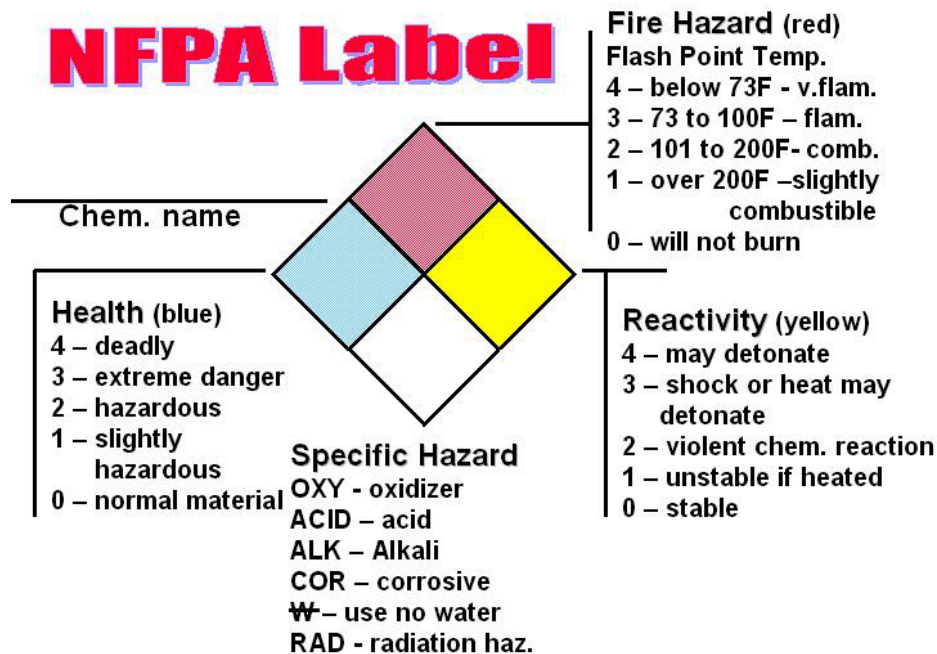
During your first lab meeting, you will be shown all of the safety features available in K405. You will be **required** to draw a sketch in your lab notebook of the K405 room that indicates the location of the following features pointed out by your instructor:

Exits	Phone	First-aid kit	Shower	Eyewash Stations	Fire Blanket
Fire Extinguishers		Glass Disposal Boxes	Gloves	Waste Disposal Area	

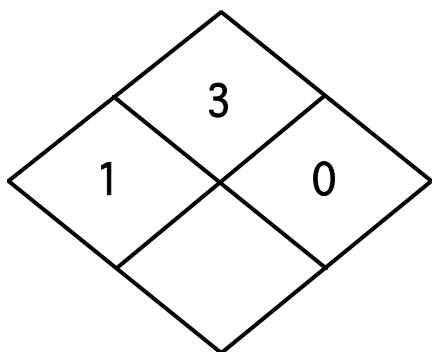
MORE INFORMATION: MATERIAL SAFETY DATA SHEETS

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 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.