

# *Safety Update*

## **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:

1. If your eye protection leaves gaps between the goggles and your face, a splash of chemical may enter even a small unprotected area and end up in your eye.
2. If you rub or touch your eyes with chemicals on your hands, chemicals may be transferred to your eye.

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

If your eyes itch severely or burn, feel free to use the eyewash. 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.