

\_\_\_\_\_ **High School Chemical Hygiene Plan**

In accordance with the Federal Laboratory Standard, \_\_\_\_\_ recognizes its responsibility for the protection of its employees. The attached chemical hygiene is therefore instituted to assist the overall safety program.

\_\_\_\_\_ hereby appoints \_\_\_\_\_ to be its Chemical Hygiene Officer. We acknowledge the Chemical Hygiene Officer has the knowledge and authority to implement and enforce our chemical hygiene plan. In addition, he/she will be provided with on going safety training.

Although we, \_\_\_\_\_, are designating \_\_\_\_\_ as our Chemical Hygiene Officer, we realize that the success of the Chemical Hygiene Plan rests with all employees. The ultimate responsibility for the Chemical Hygiene Plan rests with the School District Superintendent and the School Board for Portland School District # 1.

\_\_\_\_\_ Date \_\_\_\_\_  
Principal

## High School Chemical Hygiene Plan

### I. Standard Operating Procedures

#### A. General Employee Rules and Procedures

All teachers and other employees will abide by the following principles and guidelines when using chemicals for instructional purposes.

1. Minimize all chemical exposures.
2. Avoid skin contact with chemicals.
3. Do not underestimate the risks and hazards of chemicals.
4. Read all chemical labels before using.
5. Wear safety goggles at all times when working with chemicals.
6. Know and understand the hazards for any chemical used. Know the procedures for properly handling chemicals.
7. Have basic safety equipment including a fire blanket; safety goggles, fire extinguisher, and eye wash readily available.
8. Store all chemicals in the appropriate areas in the stock room. Be sure that chemicals are stored in compatible chemical families.
9. Do not store flammable liquids near a source of ignition.
10. Only authorized personnel should be allowed in chemical storerooms.
11. When possible avoid working alone in chemical storage areas.
12. It is recommended that you test beforehand any classroom demonstrations.
13. It is recommended that you keep the master switch for the gas jets shut off except when the jets are in use.
14. Do not dispense chemical directly from the stock bottles.
15. Properly label all chemical supplies dispensed in the laboratory, including hazards where appropriate.
16. Properly dispose of waste chemicals.
17. Require all students to learn basic safety rules and to return signed safety agreements.
18. Train students in safety procedures and make them aware of special safety precautions for any laboratory experiment that they are to perform.

#### B. General Laboratory Rules and Procedures for Students

To insure that all chemistry laboratory experiences are safe, positive experiences, the student will be required to abide by all of the following guidelines:

1. All students will be issued a laboratory safety agreement. They will return a copy of this agreement, signed by both the student and the parent or guardian. This agreement is required for participation in laboratory activities. It will be kept on file by the instructor.
2. No more than 28 students are allowed in the lab. Always conduct yourself in a responsible manner at all times. No horseplay or other fooling around should ever occur in the laboratory.
3. Work only in your assigned lab station. Please do not wander around the room and distract other students or interfere with their work.
4. Be properly prepared to conduct all experiments. Read written procedures in advance. Many experiments will have special safety instructions and techniques. Pay attention to laboratory safety instructions and be sure you understand what you are doing before you proceed.
5. Wear the appropriate protective equipment as designated by your instructor. **Wear safety goggles**, gloves, aprons, and face shields where required.
6. Perform all experiments as directed. Do not do anything that is not part of an approved experimental procedure. Follow all instructions, both written and verbal, that are provided by your instructor. Obtain approval before making any changes. Do not perform any unauthorized experiments.

7. Never work alone in the laboratory without instructor supervision.
8. Wear appropriate clothing in the laboratory. Shoes should cover the entire foot, clothing should not be loose and floppy, especially the sleeves.
9. Tie back long hair to keep it away from the flames and chemicals.
10. Keep the aisles clear at all times. Put large book bags completely under the tables or leave them in your locker. Push stools and chairs under the tables when they are not in use.
11. Know the locations of the fume hoods, eyewash, fire blanket, and fire extinguishers.
12. Absolutely no food or beverages for human consumption are allowed in the laboratory area. Do not eat in the laboratory area.
13. Never take chemicals, supplies or equipment out of the laboratory without the knowledge and consent of the instructor.
14. Do not enter the laboratory chemical stockroom without specific permission from your instructor.
15. Handle all chemicals with care. Never taste a chemical. Check odors when instructed to do so by gently wafting some of the vapor toward your nose by hand.
16. Read chemical labels and hazard warnings very carefully. Make sure that you have the correct substance in the correct concentration. Check the label twice before removing any of the contents. Review the instructor's safety instructions for handling hazardous materials.
17. Report all accidents, spills, or injuries to your instructor immediately.
18. Always protect the balance pans when weighing chemicals. If you spill material clean it up immediately. Never return chemicals to the original stock bottles.
19. Use the fume hood or make appropriate provisions for trapping hazardous gases that might be evolved during an experiment.
20. Clean up spills immediately. Clean all lab equipment when you are finished with the laboratory experiment. Return your equipment to the place designated by your instructor when you are finished.
21. Dispose of waste chemicals properly according to your instructor's instructions. Do not put hazardous chemicals or other solids in the sinks.
22. If you break any glassware, inform your instructor and list the item broken on the breakage inventory sheet.
23. Turn off your Bunsen burner when it is not in use.
24. Treat burns immediately by putting the burned area under cold water.
25. Do not leave glass thermometers unattended. Store them between the water tap and gas jets when you are not actually using them.
26. I agree to provide my instructor with a list of allergies or other medical problems that could endanger my safety in the laboratory.

### **C. Personal Hygiene Guidelines**

1. Do not eat or drink, or apply cosmetics in the laboratory.
2. Wash your hands thoroughly after working in the laboratory.
3. Never smell chemicals directly.
4. Never bring foods, open or closed into the laboratory.

### **D. Protective Clothing Requirements**

1. Eye protection must be worn at all times when working with chemicals in the laboratory.
2. Additional safety clothing such as aprons and gloves may be required when the experiment warrants it.
3. Wear closed toe and low-heeled shoes.
4. Do not wear clothing with loose or balloon sleeves that will get in the way of chemicals.
5. Avoid ties and hanging jewelry.
6. Keep book bags and personal equipment out of the aisles and emergency exits.

### **E. Housekeeping Rules**

1. Keep chemicals in the preparation and storage area. Those chemicals that are temporarily in the laboratory for current use should be properly labeled.
2. Properly dispose of waste chemicals.
3. Waste disposal containers should be properly marked.
4. All chemicals including solutions should be properly labeled with hazards.
5. All spills should be cleaned up promptly and properly.
6. Work areas and floors should be cleaned regularly.

### **F. Accidents and Spills**

1. In the event of an emergency all students will be evacuated from the laboratory, using the nearest exit. Students exit using the posted classroom evacuation route.
2. All chemical spills will be cleaned up immediately using approved spill cleanup procedures.
3. A bucket of dry sand and a class D fire extinguisher will be kept readily available.
4. A supply of sodium carbonate will be available to neutralize acid spills.

### **G. General Chemical Storage**

1. An updated inventory will be kept for showing all chemicals in stock and their location. Stored chemicals will be inspected periodically.
2. All stored chemical solutions will be labeled with the chemical identity, concentration and hazard information.
3. All new chemicals will be dated on arrival.
4. Chemicals will be stored in a separate secure area.
5. All incoming chemicals will be opened and transported by qualified science teachers.
6. All chemicals will be stored in compatible chemical groupings using an approved storage scheme.
7. All flammable chemicals will be stored in approved flammable storage cabinets.
8. Chemicals will not be stored under fume hoods.
9. The chemical storage area will be labeled to properly identify the hazardous chemicals that are stored within.
10. Storage area should be well ventilated with at least four exchanges of air per hour
11. Food shall not be stored in a laboratory refrigerator.
12. Chemicals shall not be exposed to heat or direct sunlight. Compressed gases shall be handled as high energy sources and therefore potential explosives.
13. Flammables will be stored in a dedicated cabinet. This cabinet will be placed out of the direct sunlight and at the recommended temperature.
14. All flammables will be stored away from ignition sources and oxidizers.
15. Corrosives will be stored in separate corrosive cabinets. Hydrochloric acid and ammonia will be stored in separate cabinets away from each other.
16. Water active solids such as sodium and potassium will be stored under dry oil.

### **H. Specific safety rules for hazardous chemicals**

1. All chemicals that emit potentially hazardous vapors should be used in the fume hood.
2. The fume hood will be used whenever the permissible exposure limit for a particular chemical is less than 50 ppm.
3. In general mutagens and teratogens will not be used in the laboratory. Special care and handling will be exercised when using any chemical that is a corrosive, toxic, or carcinogen.
4. Use extreme caution when working with finely divided powders and dust like materials. Be aware that finely divided materials may form explosive mixtures in air.
5. Glycerin and other potential hazardous materials shall be kept under the control of the instructor.

## I. Safety Equipment

1. The school shall maintain adequate safety equipment in each laboratory in compliance with the laboratory standard. This equipment shall include, but not be limited to the following items
  - Safety goggles for each student
  - Eyewash
  - Fire extinguisher
  - Fire blanket
2. All safety equipment will be maintained, inspected, and kept in working order.
3. Fume hoods shall be inspected and operation at the level of 70-100 linear feet per minute.
4. The laboratory ventilation system shall be periodically tested to insure that the accepted ventilation standard of 4-12 air exchanges per hour is maintained. An online version of Material Safety Data Sheets shall be maintained and updated.
5. There will be one double outlet for every four students with appropriate circuits.

## II. Employee Safety Training

\_\_\_\_\_ High School in cooperation with the Portland Public Schools will provide ongoing safety training sessions for all employees. This training shall include:

1. Content and location of the Chemical Hygiene Plan.
2. Potential Hazards in using laboratory chemicals.
3. Handling, labeling, waste, and disposal of chemicals.
4. Signs and Symptoms of overexposure to chemicals.
5. Location and use of Material Safety Data Sheets.
6. Procedures to teach students to respect and comply with accepted safety procedures.

## III. Exposure Evaluation

It is the communicated policy of \_\_\_\_\_ High School to promptly investigate any suspected overexposure to chemicals. In the event of an overexposure, we will document all chemicals and circumstances involved in the overexposure. This information shall be used to review safety procedures and further improve laboratory safety.

Signs of overexposure could include, but are not limited to, the following:

- Accidental breakage of a hazardous materials container
- A skin rash or irritation occurring after contact with a chemical
- Caustic splash to the eyes or face
- Symptoms of dizziness or nausea

If the monitoring of the air is deemed to be necessary the results of such tests shall be made available to employees within 2 weeks.

## IV. Medical Evaluations

Medical consultation shall be available to the employee when:

- There has been a significant spill or uncontrolled release of chemical fumes.
- Monitoring indicates that an overexposure to a chemical has occurred
- There is a sign or symptoms of chemical overexposure

The attending physician shall be provided with the name of the chemicals used and the conditions under which the overexposure occurred.

Medical examinations dealing with chemical exposure shall be documented and other employees working under the same conditions shall be notified. All documentation shall be kept on file.

All medical examinations and consultations shall be performed under the direct supervision of a licensed physician, and shall be provided to the employee without cost.

## **V. Monitoring**

Monitoring will be necessary for substances regulated by a standard only if there is reason to believe that the exposure levels for the substance routinely exceed the permissible exposure limit (PEL) for that substance. If monitoring shows no evidence of exposure that monitoring may be discontinued.

If the initial monitoring shows evidence for exposure exceeding the PEL, steps must be taken immediately to reduce the exposure below the permissible exposure limit. Monitoring then shall continue periodically to verify that those steps have been effective. Monitoring may be discontinued after it can be demonstrated that no further hazard exists. The results of all monitoring shall be fully accessible and available to all employees.

## **V. Emergency Evacuation Plan**

In the event that evacuation of the entire building should be deemed necessary, the school office shall be immediately notified. An alarm shall be sounded and the building evacuated according to standard fire drill practices.

If only a classroom is to be evacuated, students shall exit by the nearest available exit. They shall then proceed out of the building in accordance with the building evacuation plan. In most cases the teacher in charge of the classroom or affected area shall make the decision to evacuate.

In all cases the teacher shall notify to school office to alert the building as to a possible hazard. The chemical hygiene officer shall also be notified to make a determination of the level of hazard.