

Bainbridge College

Chemical Hygiene Plan

POLICY STATEMENT

Bainbridge College has made a commitment to provide a safe environment. All personnel have a right to know about health hazards associated with their work. So that personnel can make knowledgeable decisions regarding personal risks, the Laboratory Chemical Hygiene Plan includes policies, procedures, and responsibilities designed to develop an awareness of potentially hazardous conditions or chemicals in the laboratory and to train personnel in appropriate safe working conditions.

It is important that employers assume responsibility for work site safety. All employees will have access to pertinent safety information through their supervisory staff. The people who work in any given environment are often best able to detect potential hazards in either the facility or work procedures. When safety concerns arise, employees are encouraged to contact their supervisor.

This program is for the benefit and protection of all community members. It contains information on potential chemical hazards and how they should be handled.

I. Responsibilities

Specific to this Chemical Hygiene Plan for Bainbridge College, employees, administrators, and students all have responsibilities to conform to this standard. The President is ultimately responsible for chemical hygiene within the institution and must, with other administrators, provide continuing support for institutional chemical hygiene. 29 CFR 1910.1450 (e) (3) (vii) and Appendix A (B)

A. Administration Responsibilities

1. Appoint a Chemical Hygiene Officer. The Chemical Hygiene Officer is Dr Dueno.
2. Implement a Chemical Hygiene Plan conforming to the OSHA Lab Standard (29 CFR 1910.1450).
3. Ensure that employees receive training regarding the Chemical Hygiene Plan.
4. Allocate staff time for regular, formal chemical hygiene and housekeeping inspections, including routine inspections of emergency equipment and an annual chemical inventory.
5. Maintain a record of all chemical exposures and provide employee access to these records as well as any medical records. Ensure confidentiality of all personal records.
6. Provide resources to ensure that facilities and equipment align with requirements of the Plan.
7. Phase out mercury in the facility, per Department of Environmental Protection regulations.
8. Ensure that the local Fire Department receives a copy of the annual chemical inventory.

B. Chemical Hygiene Officer Responsibilities

1. Work with the administration and science department staff to develop and implement appropriate chemical hygiene policies and practices.
2. Monitor procurement, use and disposal of chemicals in the lab, including determining that facilities and training levels are adequate for the chemicals in use.
3. Perform regular safety audits.
4. Maintain Material Safety Data Sheets (MSDS) for chemicals.
5. Oversee biannual chemical inventory. Provide a copy of the current chemical inventory to the USG Office, and Environmental and Safety Office.
6. Coordinate annual review of the Chemical Hygiene Plan (CHP).
7. Coordinate annual hazardous waste disposal for laboratories.
8. Oversee maintenance of appropriate spill kit and materials.
9. Maintain communication with administration regarding the CHP.
10. Provide training to staff.

C. Laboratory Personnel Responsibilities

1. Plan and conduct each laboratory operation in accordance with the Chemical Hygiene Plan and safe work practices.
2. Teach good personal chemical hygiene habits. Ensure that students meet their lab safety responsibilities. Prohibit unsupervised work by students.
3. Participate in annual chemical inventory.
4. Plan and conduct each laboratory exercise with the least toxic materials. Obtain and review MSDS prior to requesting new chemical.
5. Label, use, and dispose of each chemical as required.
6. Maintain laboratory safety equipment.
7. Maintain spill kits that are consistent with type and amount of chemicals used.
8. Maintain communication with Chemical Hygiene Officer.

D. Custodian Responsibilities

1. Understand and follow chemical and hazardous waste management regulations and best practices.
2. Clean science laboratories and storage areas with caution.
3. Report chemical spills to CHO and/or security. Do not clean up spills without proper training.

II. Basic Safety Rules and Procedures

1. Adhere to the intent and procedures of this CHP.
2. Know the safety equipment. Users of the labs must know:
 - a. The location of eyewash fountains, safety showers, fire blankets, fire extinguishers, first aid kits, and emergency exits;
 - b. How to respond in case of an emergency; and
 - c. How to use the safety equipment. Those expected to use the equipment (e.g. fire extinguishers) must receive proper training.
3. Know the hazards of the materials being used. Read labels carefully to make sure you are using the right chemical. Know how to interpret information from a Material Safety Data Sheet.
4. No horseplay, games, or pranks in the laboratory.
5. Dispose of all waste materials according to instructions. Follow local, state, and federal disposal requirements.
6. Report any accidents or unsafe conditions to Security (726-9371) immediately.
7. Assume any chemical mixture is more toxic than its most toxic component. Substances of unknown toxicity will be assumed to be toxic. Do not underestimate the risk of any chemicals.
8. Do not eat, drink, or apply cosmetics in the laboratory.
9. Do not taste any chemical. Do not smell chemicals directly.
10. Do not pipette solutions by mouth.
11. Wash hands with soap and water before leaving the laboratory, even if you have been wearing gloves.
12. Promptly flush exposed skin with water. Drench showers are located in room 253.
13. See also **Housekeeping** section of this CHP.

III. Chemical Procurement

29CFR1910.1450 Appendix A (D)

1. Before a chemical is procured, proper handling, storage and disposal methods must be known to those responsible.
2. Purchase the smallest possible amounts. Whenever practical, chemicals should be purchased as pre-diluted solutions to minimize mixing and the chance for improper labeling and storage.
3. No container will be accepted without an adequate label and material safety data sheet.
4. Bainbridge College will follow a purchasing policy and procedures to minimize large quantities of chemicals and/or extremely hazardous chemicals from the campus.
5. Requests for procurement of new chemicals will be made through the Chemical Hygiene Officer. Any concerns about the safety of a requested chemical should be brought to the attention of the Chemical Hygiene Officer or the Environmental and Safety Office.
6. All chemicals will be received at Plant Operations by shipping and receiving personnel.

IV. Control Measures

29 CFR 1910.1450(e) (3) (ii)

A. Engineering Controls

Engineering controls are the preferred methods of minimizing exposure to chemicals. Controls must be maintained in proper working order. Engineering controls must not be modified unless testing indicates the changes will not reduce protection. Report improper functioning of engineering controls to the Chemical Hygiene Officer or Security immediately.

1. Laboratory Hoods – will be used for all chemical procedures involving volatile substances with a permissible exposure limit (PEL) less than 50 ppm. Work practices for hoods:
 - a. Keep sash closed when not working in the hood. When working in the hood, keep sash height as low as possible.
 - b. Do not store chemicals inside the hood.
 - c. Do not use hood for disposal of volatile chemicals.
 - d. Minimize interference with the inward flow of air into the hood.
2. Maintain face velocity between 75 and 125 feet per minute.
3. Storage cabinets for flammable and hazardous chemicals will be provided and ventilated as needed in compliance with state and federal regulations. The flammable cabinet will be either direct vented to the outside or not vented with bungs left in place.
4. All acids will be stored in an acid cabinet.
5. A general ventilation system will be maintained for each lab with air intakes and exhausts located so as to avoid intake of contaminated air.

B. Protective Clothing and Equipment

Clothing worn in the laboratory should offer protection from splashes and spills, should be easily removable in case of an accident, and should be fire resistant.

1. Conduct a personal protective equipment (PPE) hazard assessment to determine appropriate PPE for conditions, equipment and chemicals being used. Students and staff will wear appropriate PPE to avoid chemical exposure.
 - a. Wear eye protection during chemical transfer and handling.
 - b. Do not wear sandals, perforated shoes, or bare feet in labs.
 - c. Shorts and skirts will not be worn unless a disposable apron is worn.
2. Gloves appropriate to the materials and task will be provided.
3. The school will provide required PPE for all employees at no cost.
4. The user must inspect PPE before each use. Defective personal protective equipment will not be used and will be reported to the CHO.
5. laboratories will have
 - a. An easily accessible drench-type safety shower
 - b. An eyewash station
 - c. A fire extinguisher

- d. A first aid kit
 - e. Burn blanket
 - f. A Spill kit
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- 6. Fire alarms and emergency telephone in each lab
- 7. Conduct work with toxic chemicals in a fume/vapor hood. Confirm hood performance before use.

C. Housekeeping

Each instructor is responsible for keeping his or her workspace clean and is jointly responsible for common laboratory areas.

- 1. Keep unobstructed access to emergency equipment such as showers, eyewash, fire extinguishers, fire blankets, and emergency exits.
- 2. Keep work areas clean and uncluttered, with chemicals and equipment properly labeled and stored. Make sure all gas and water outlets are completely shut off. Return all items used in the experiment to their proper storage location.
- 3. Secure gas cylinders.
- 4. Clean up any spills on the floor or bench immediately.

D. Hazardous Material Handling and Storage

Follow all federal, state and local regulations for material handling and storage and waste disposal.

- 1. All chemicals in the stockroom should be stored according to chemical compatibility. Chemicals will be segregated by hazard classification and compatibility in a well-identified area with local exhaust ventilation.
- 2. Use appropriate shelving or cabinets. If metal clips are used to hold shelves, they should be inspected for corrosion and replaced as necessary.
- 3. Store flammable liquids in approved fire cabinets. Where possible, vent flammable cabinets to the outdoors. If not possible to vent to the outdoors, do not vent the cabinet at all (leave the bungs in place).
- 4. Do not store chemicals on the floor (except gas cylinders) or above eye level.
- 5. Gas cylinders should be properly secured, segregated according to compatibility, and stored upright and away from heat sources.
- 6. Restrict access to chemical storage areas through signage and secure locks. No student or unauthorized faculty should be allowed in storage area unsupervised.
- 7. Make sure shelves holding containers are secure. Attach anti-roll lips on shelves to prevent chemicals from falling.

8. When opening newly received chemicals, immediately read the warning label to be aware of any special storage precautions like refrigeration or inert atmosphere storage.
9. Storage of chemicals is not allowed at the lab bench or areas outside the designated chemical storage room, such as in aisles, stairwells or hallways or on desks or floors.
10. Maintain a complete inventory of chemicals in the chemical storage room. Inventory science chemicals bi- annually. File the bi-annual inventory with the Fire Department.
11. Any chemicals identified during the inventory as expired, outdated, unlabeled, unknown, or unwanted must be listed for disposal. See **Waste Disposal** section.
12. Mark the acquisition dates on all peroxide forming chemicals, and test them for peroxides or dispose of them after six months.
13. Provide spill cleanup supplies (absorbents, neutralizers) in any room used for chemical storage or use.
14. Exhaust air from the stockroom should be ducted directly to the outside. Plant Operations is responsible for ensuring that the exhaust air is properly ducted.
15. Use refrigerators of explosion-proof, or explosion safe design only. Standard refrigerators that have not been converted should never be used to store flammable chemicals; a spark from a light bulb may ignite flammable vapors. Do not store food in the refrigerator.
16. Chemicals should be dated upon receipt, dated to be disposed where appropriate, and dated when opened (e.g., peroxides, anhydrous ethers, sodium nitrites, etc.).
17. Chemical containers should be periodically checked for rust, corrosion, and leakage.
18. Chemical labels should state name of chemical, be firmly attached to the container, list hazards, and name responsible party (manufacturer).
19. Chemical labels must be readable and free from chemical encrustation.
20. Maintain a clear access to and from the storage areas. Highly toxic chemicals whose containers have been opened will be stored in secondary containers.

E. Inspections

1. Plant Operations is responsible for activating safety showers and eyewash fountains Monthly) to flush the lines and to verify proper operation.
2. CHO is responsible for assuring that fume hoods are monitored annually to ensure adequate airflow (75-125 linear feet per minute).
3. Plant Operations is responsible for making sure fire extinguishers are the correct type (ABC), at recommended pressure, are easily accessible, and are inspected monthly. Fire extinguishers should be securely mounted on the wall and a sign indicating their location posted above the fire extinguisher.
4. Users should inspect personal protective equipment prior to each use.

Medical Program

The Chemical Hygiene Plan shall include provisions for medical consultation and medical examinations in accordance with 29 CFR 1910.1450(e) (3) (vi) and (g)

A. Medical Consultation and Examination

When employees or supervisors suspect that an employee has been exposed to a hazardous chemical to a degree and in a manner that might cause harm to the victim, the victim is entitled to a medical consultation and examination without cost or loss of pay to the employee. Medical records shall be retained according to state and federal laws in accordance with 29 CFR 1910.1020. The events and circumstances that might result in overexposure to a chemical are:

1. A hazardous chemical leaked, was spilled, or otherwise released in an uncontrolled manner.
2. A hazardous chemical was spilled on the skin or splashed in the eye.
3. A person displays signs or symptoms that might indicate overexposure to a hazardous chemical including but not limited to rash, headache, nausea, coughing, tearing, irritation or redness of eyes, irritation of nose or throat, dizziness, loss of motor dexterity or judgment.
4. **Bainbridge College shall provide medical consultations/examinations in the event of chemical exposure:**

B. Exposure Assessment

1. All chemical exposure incidents shall be documented on an accident report form, along with any action taken. If no further action is taken, the reason for that decision should be included. **HR is responsible for investigating chemical exposure incidents.**

C. First Aid

1. Bainbridge College has access to emergency care available by dialing 911. Basic first aid can be obtained from security 726-9371.
2. The closest emergency room with medical personnel is Memorial Hospital (246-3500)

VI. Signs and Labels

29CFR1910.1450 Appendix A (D) (8)

The following signs and/or labels should be posted prominently in the laboratory:

1. Emergency telephone numbers of emergency personnel, emergency facilities, administration, and the laboratory instructor.
Rescue: 911
Fire: 911
2. Hospital: 246-3500
3. Poison Control: 1-800-222-1222
4. Administration: 248-2510
5. Lab Instructor: 248-2560
6. Security: 726-9371

7. Labels on all chemicals and other containers indicating the contents (including waste receptacles) and associated hazards.
8. Location of exits, safety showers, eyewash station, fire extinguisher, fire blanket, and other safety equipment.
9. Label all laboratory refrigerators "NO FOOD STORAGE ALLOWED".
10. Warnings at areas or equipment where special or unusual hazards exist.

Spills and Accidents

29CFR1910.1450 Appendix A (D) (9)

1. In the event of a spill, staff must contact the CHO or Security.
2. **Before beginning cleanup.** The CHO or other authorized person *will* assess the nature of the spill using the Emergency Response Manual to determine appropriate response.
3. The responsible staff will evacuate all persons from the spill or accident area until certain that the spill is not hazardous to people in the general area.
4. The CHO or Security is responsible for promptly addressing the needs of people who may have been exposed.
5. The CHO or Security must report the spill to 911 if a reportable quantity is spilled.
6. All waste generated from a chemical spill will be treated as hazardous waste.
7. Custodians and faculty cannot respond to chemical spills unless appropriate training and equipment has been provided.

Waste Disposal

29 CFR 1910.1450 (Appendix A (D) (11).

To assure that minimal harm to people, other organisms, and the environment will result from the disposal, of waste laboratory chemicals.

1. Biannually, on the dates required by the USG Office, the Lab assistant will complete an inventory of stored chemical wastes (including virgin chemical stock identified as waste) and submit it to the CHO.
2. The CHO and Environmental and Safety Coordinator will coordinate hazardous waste disposal. Waste will be collected for disposal at least annually.
3. Indiscriminate disposal by pouring waste down the drain or adding them to the general trash is unacceptable. It is not permissible to neutralize quantities of > 500 milliliters of corrosive hazardous waste or evaporate, distill, filter, or burn other waste chemicals.
4. If large quantities of hazardous chemical wastes are being stored or if a container is full, a hazardous waste pick-up should be scheduled by the CHO within 180 days of the container becoming full.

5. The CHO or Environmental and Safety Coordinator are responsible for all hazardous waste manifests and associated paperwork.
6. All chemical wastes destined for hazardous waste disposal must be stored in the designated waste storage area, and segregated for compatibility. All containers must have the following information on the label:
 - o "Hazardous Waste"
 - o The chemical contents,
 - o The date that waste was first put in and
 - o The date the container was filled.

7. When a hazardous waste pick-up is needed, Bainbridge College will contact a reputable TSDF (treatment, storage and disposal facility) to transport and dispose of hazardous waste as per RCRA (resource conservation and recovery act) 40 CFR 260-279.

No liquid chemicals, other than appropriate cleaning chemicals, will be disposed of down the drain. Non-hazardous liquid chemicals may be solidified for solid waste disposal (i.e. put in the trash). Custodians must be notified of any chemical put in the trash for disposal. Hazardous waste must not be disposed of down the drain or in the trash. Hazardous waste must be disposed of by a licensed hazardous waste transporter at a facility licensed to accept hazardous waste.

If on a municipal sewer system:

Non-hazardous liquid may be disposed of down the drain with the permission of the sewer district manager. Corrosive hazardous waste, which is hazardous only due to pH (i.e. no contaminants of heavy metals, solvents, etc.), and which is less than 500 milliliters in quantity, may be neutralized to a non-hazardous waste prior to disposal. Non-hazardous liquid chemicals may also be solidified for solid waste disposal (i.e. put in the trash).

IX. Information and Training

29CFR1910.1450 (f)

1. All employees will be trained on the hazards of the chemicals in the laboratory and how to work safely with them. They will receive training at the time of employment and prior to assignments involving new exposure situations.
2. The CHO is responsible for ensuring that lab employees receive information and training to ensure they are aware of the hazards of chemicals that are present in their work area. This training must include the following:
 - a. The contents OSHA Lab Standard and appendices;
 - b. Location and availability of Chemical Hygiene Plan, chemical safety reference materials, including Material Safety Data Sheets and the Permissible Exposure Limits for OSHA regulated substances.
 - c. Signs and symptoms associated with exposure to hazardous chemicals.

- d. Methods and observations that may be used to detect the presence or release of a hazardous chemical (visible appearance, odor, monitoring equipment, etc.).
- e. Knowledge of the hierarchy of protective measures such as engineering controls, work practices, personal protective equipment, and emergency procedures to protect workers from overexposure to hazardous chemicals.
- f. Emergency procedures to be used in case of a spill or exposure, including cleanup methods and equipment needed.
- g. Use of fire extinguishers and other emergency equipment.

X. Annual Chemical Hygiene Plan Audit

29CFR1910.1450 (e) (4)

The CHO or Environmental and Safety will conduct an audit of all phases of the Chemical Hygiene Plan each year.