Bowie State University

Chemical Hygiene Plan

Background

OSHA Regulations

The Federal Occupational Safety and Health Administration (OSHA) enacted the Occupational Exposure to Chemicals in Laboratories Standard, CFR 1910.1450, to ensure that employees working with hazardous chemicals are protected. This standard applies to all laboratories at Bowie State University. The University implements a Chemical Hygiene Plan to ensure compliance with these regulations, outlining:

- Work practices, procedures, and policies to protect employees and students.
- Methods to minimize exposure to hazardous chemicals.
- Annual safety training for all researchers, with mandatory orientation for new laboratory personnel.
- Emergency response procedures to handle chemical accidents effectively.
- A structured framework for monitoring, assessing, and improving chemical safety practices across all university laboratories.

The plan is updated annually and made available to all laboratory personnel in digital and hard copy formats. The implementation of the plan is overseen by the designated Chemical Hygiene Officer/Safety Officer at the university.

General Information

All chemical exposures should be minimized. No laboratory chemical is without hazard. The following general precautions must be observed:

- Avoid skin contact with all laboratory chemicals.
- Assume unknown substances are hazardous.
- Wear gloves, safety glasses, and a laboratory coat at all times.
- Safety Data Sheets (SDS) must be readily accessible to all personnel.
- Laboratory personnel must be aware of proper chemical handling techniques to minimize risks.
- Hazardous materials should be labeled correctly, and inventory lists should be maintained.

Chemical Hygiene/Safety Officer Duties and Responsibilities

The Chemical Hygiene Officer/Safety Officer shall:

- Have sufficient training to evaluate and implement the plan.
- Be allocated adequate time and authority to carry out duties.

- Maintain an inventory of all hazardous materials and waste.
- Ensure proper training in hazardous material handling, labeling, storage, and disposal.
- Maintain and update Safety Data Sheets.
- Conduct hazard assessments and inspections.
- Respond to hazardous material incidents.
- Evaluate the effectiveness of the plan annually.
- Coordinate with emergency response teams and fire safety personnel.
- Ensure compliance with all local, state, and federal regulations related to chemical safety.
- Conduct periodic safety drills to enhance emergency preparedness.

General Laboratory Safety and Work Practices

- Review and understand chemical hazards before use.
- Never eat, drink, or store food in laboratories.
- Label all chemical containers properly.
- Dispose of hazardous waste in designated containers.
- Always use fume hoods when working with volatile chemicals.
- Keep work areas clean and clear of non-essential materials.
- Report all accidents and injuries immediately.
- Proper ventilation must be maintained to reduce exposure to airborne contaminants.
- Maintain up-to-date records of all laboratory activities and safety inspections.

Definitions

Hazardous Materials: Substances capable of posing risks to health, safety, or property.
Flammable Chemicals: Easily ignitable liquids or solids.
Corrosive Chemicals: Substances that cause destruction of human tissue or severe corrosion to metals.
Reactive Waste: Unstable chemicals that may violently react or explode.
Toxic Waste: EPA-listed hazardous chemicals harmful to human health.
Combustible Liquids: Liquids that can ignite under specific conditions and pose a fire hazard.

Storage of Hazardous Chemicals

- Store chemicals in compatible containers and segregate based on hazard class.
- Acids must be stored separately from bases and flammables.
    - Acids must be separated from caustics like potassium, sodium, and magnesium
    - Oxidizing acids must be separated from organic acids, flammable, and combustibles
- Flammable chemicals should be stored in safety cabinets.
- Peroxide-forming chemicals must be labeled with dates and properly disposed of before expiration.
- Toxic compounds require secure storage with proper labeling.

- Laboratory storage areas must be regularly inspected for compliance with storage regulations.

Protective Apparel and Equipment

- Laboratories must provide appropriate protective equipment (gloves, goggles, lab coats, etc.).
- Safety showers and eyewash stations must be within 10 seconds of laboratories handling hazardous chemicals.
- Fire extinguishers must be accessible and maintained.
- Proper signage and labeling must be in place for emergency contacts, safety equipment, and hazard classifications.
- Personnel must be trained in the use of personal protective equipment (PPE) and emergency response measures.

Emergency Procedures

- Major Accidents (Students & Employees): Call university police at 301-860-4040.
- Minor Accidents: Report to the university health center or emergency room if after hours.
- All accidents must be documented and reported to the department chair within 24 hours.
- Emergency response kits must be available in all laboratories.

Training Requirements

- All new laboratory personnel must complete chemical safety training before beginning work.
- Annual chemical safety seminars are mandatory for personnel working in laboratories.
- Faculty instructors must train students in proper laboratory safety procedures.
- Additional training must be provided for handling highly toxic or reactive chemicals.

Hazardous Waste Management

- Waste must be properly labeled and stored in designated containers.
- Procedures must be in place to manage the disposal of expired or unnecessary chemicals.
- The university must coordinate with certified hazardous waste disposal services.
- Personnel handling hazardous waste must receive specialized training.

Ventilation and Engineering Controls

- Laboratories must be equipped with properly functioning ventilation systems.
- Fume hoods should be inspected regularly for efficiency.
- Air quality monitoring must be conducted to ensure safe laboratory environments.

Chemical Spill Response and Cleanup Procedures

- Immediate response measures must be in place for chemical spills.
- Personnel must be trained in proper cleanup and disposal of hazardous materials.
- Emergency response teams should be available for large-scale chemical spills.

Recordkeeping and Documentation

- Safety inspections and training records must be maintained.
- Chemical inventories should be updated regularly.
- Incident reports must be filed for all accidents and safety breaches.