

Facilities Management Department

Coppin State University

Page 1 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

I. INTRODUCTION

The Occupational Safety and Health Administration (OSHA), through the 29 Title of the Code of Federal Regulations, Part 1450, regulate the occupational exposure to hazardous chemical substances in the laboratories. The 29 CFR 1910.1450(e) requires the development and implementation of a written plan to reduce the exposure of employees to hazardous chemicals in laboratories.

II. OBJECTIVES

1. Reduce the health hazards associated with working with hazardous chemicals.
2. Establish guidelines to the proper handling of hazardous chemicals and the generated wastes.
3. Keep a complete inventory of chemicals used in the laboratories.
4. Develop an information program for employees and students focused on the use of hazardous chemicals.
5. Protect the Campus property due to accidents related with the handling of hazardous chemicals.

III. RESPONSIBILITIES

1. Safety and Environmental Manager
 - a. Provide assistance and information concerning hazardous chemicals and wastes.
 - b. Prepare and review the Chemical Hygiene Plan for the Campus
 - c. Conduct periodic laboratory safety audits to determine compliance
 - d. Provide training for employees
 - e. Dispose of hazardous and biohazards wastes generated in the laboratories.
2. Laboratory Supervisors (Professors)
 - a. Implement the Chemical Hygiene Plan
 - b. Ensure compliance with all applicable regulations
 - i. Use of hazardous chemicals
 - ii. Hazardous wastes management
 - iii. Compress gas cylinders
 - c. Correct deficiencies identified during laboratory safety audits

Facilities Management Department

Coppin State University

Page 2 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

- d. Ensure students are using the proper personal protective equipment
- e. Ensure students are following the requirements of this plan
- f. Report any incident (injuries, spills, etc.) to the Safety and Environmental Manager as soon as possible

3. Laboratory Technicians

- a. Maintain an up to date inventory of chemicals for laboratory use
- b. Maintain the laboratories in the best operating conditions
- c. Label all solutions and containers to be use in laboratories
- d. Collect and label hazardous wastes
- e. Maintain an up to date inventory of laboratory equipment's
- f. Report any incident to the Safety and Environmental Manager as soon as possible
- g. Prepare requisitions of chemicals and materials following the policies outlined in this Plan

4. Department Head, Vice-Presidents

- a. Require implantation and compliance with the Chemical Hygiene Plan
- b. Provide assistance to correct deficiencies identified during safety audits

5. Professors doing research

- a. Comply with the requirements of the Chemical Hygiene Plan
- b. Report any incident (injuries, spills, etc.) to the Safety and Environmental Manager as soon as possible
- c. Use the proper personal protective equipment

IV. SAFETY RULES

1. The use of safety eyewear is mandatory in the laboratories. The use of contact lenses is not recommended where chemicals are being handled.
2. Clothing shall be appropriate to the laboratory; efforts must be made to minimize skin exposure (i.e. lab coats, long pants, and regular closed toed shoes are required). The use of sandals or open toe shoes is not acceptable in the laboratories. Lab coats should be closed.
3. Do not smoke, eat, drink, or apply make-up in the laboratories or chemical storage areas.
4. Wash your hands after handling chemicals.
5. Limit the access to the lab to only authorize personnel.

Facilities Management Department
Coppin State University

Page 3 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

6. Use the fume hood when handling toxic or fumes producing substances.
7. Know the location of safety equipment: fire extinguisher, safety shower, fire blanket, and eyewash.
8. Do not work alone in the laboratory when working with hazardous materials.
9. Never smell or taste hazardous chemicals.
10. Dispose all broken glassware in the proper container.
11. Know the hazards associated with the materials used. Read the MSDS of the substances and ask your instructor or supervisor if you have any questions.
12. All compressed gas cylinders shall be tied up and with their caps on (when not in use).
13. Avoid practical jokes or other behavior which might confuse, startle or distract another worker.
14. Keep the work area clean and uncluttered with chemicals and equipment. Clean up the work area on completion of an operation or at the end of each work day.
15. Long hair must be tied up. The use of loose clothing or jewelry is not recommended in the labs.

V. HOUSEKEEPING

Any working area should be kept clean and well organized, especially those areas where chemicals are being used.

The housekeeping of labs will be performed in compliance with the following:

1. Professors, Laboratory Technicians, and/or Researchers

Every person working in a lab is responsible of keeping the working area clean and organized. After each lab section, the lab must be in conditions to be used again.

- a. Clean the equipment, benches and other areas like fume hoods, sinks, etc.
- b. Clean small chemical spills.
- c. Dispose broken glassware.
- d. Store chemicals that are not being used.
- e. Frequently clean refrigerators, cabinets, and storage areas.
- f. Clean and disinfect all working surfaces.
- g. Properly label **ALL** containers with chemicals (water included) and wastes.

Facilities Management Department

Coppin State University

Page 4 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

2. Housekeeping personnel

Housekeeping personnel shall:

- a. Clean the floor on a daily basis, except when there is a spill.
- b. Disposed common trash cans.

VI. STORAGE, INVENTORY AND MSDS OF CHEMICALS

Keep storage area separated from laboratories and the hazardous wastes storage area. Chemicals will be stored base on compatibility and in proper cabinets. Fume hoods are not storage areas and shall not be used to permanently store chemicals.

In general:

1. Cabinets shall be compatible with the materials that are going to be stored.
2. Shelves must have a protective border of at least one inch.
3. Chemicals shall be stored accordingly to their hazards.
4. All containers shall be labeled and include the hazards rate index (NFPA).
5. Always have spill kits available.
6. Do not smoke, eat, drink, or apply make-up in chemical and hazardous wastes storage areas.
7. Provide proper ventilation.

A detail inventory shall be prepared every year. All chemicals will be included in the inventory. Use the provided document (Appendix A). A copy of this Inventory shall be sent to the Safety and Environmental Manager.

There shall be a MSDS for every chemical listed on the Inventory. MSDS are available through the following link:

VII. FUME HOODS

Safe work practices for fume hoods:

1. Any activity that can produce atmospheric contaminants at equal or greater levels than PEL or TLV shall be performed inside the fume hood.

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

2. Keep your face out of the fume hood.
3. Keep equipments and/or containers at least six inches away from the border. Do not obstruct the air flow across the fume hood with equipment or materials.
4. Keep only the essential equipment and material for the work you are performing. Fume hoods' extraction capacity is modified by stored equipment and materials.
5. If you need to temporally store a chemical in the fume hood, keep it working and label it.
6. It is recommended to keep the door up to 12 inches from the border to ensure the safety of students and employees.

VIII. LABELS AND WARNING SIGNS

Labels and warning signs are the first information sources when handling a chemical. You can find any of this labels and/or warning signs in labs:

1. Specific hazards warnings
 - a. Carcinogenic agent
 - b. Toxic material
 - c. Flammable material
2. Access control warnings
 - a. Authorize personnel only
 - b. Restricted Area
 - c. Explosives – keep out
3. Safety information signs
 - a. Safety shower
 - b. Eye wash station
 - c. First Aid kit
 - d. Fire extinguisher
4. Safe work practices and/or rules
 - a. Do not smoke, eat, drink, or apply make-up in the laboratories or chemical storage areas
 - b. Safety glasses required
 - c. Do not store food

Facilities Management Department

Coppin State University

Page 6 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

5. Hazardous materials labels

These labels have a diamond shape (NFPA) and are divided in four color coded sections.

a. Health hazard (Blue)

- 4 – Lethal
- 3 – Extremely hazardous
- 2 – Hazardous
- 1 – Slightly hazardous
- 0 – Not hazardous




b. Flammability hazard (Red)

- 4 – Will vaporize and readily burn at normal temperatures
- 3 – Can be ignited under almost all environment temperatures
- 2 – Must be heated or high environment temperatures to burn
- 1 – Must be preheated before ignition can occur
- 0 – Will not burn

c. Instability hazard

- 4 – May explode at normal temperatures or pressures
- 3 – May explode at high temperature or shock
- 2 – Violent chemical change at high temperatures or pressures
- 1 – Normally stable. High temperatures can make it unstable
- 0 – Stable

d. Special hazard

- ALK – Alkaline
- ACID – Acidic
- COR – Corrosive
- OX – Oxidizing
-  – Radioactive
-  – Reacts violently or explosively with water
-  – Reacts violently or explodes with water and oxidizing

Facilities Management Department

Coppin State University

Page 7 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

IX. PERSONAL PROTECTIVE EQUIPMENT (PPE)

When handling hazardous substances proper personal protective equipment shall be used. Students will use long pants, closed lab coats, and closed shoes. Gloves will be worn when needed. The use of safety glasses is required in all labs.

Personal protective equipment for employees may include:

1. Safety glasses or goggles
2. Lab coats
3. Gloves
4. Safety shoes
5. The use of contact lenses is not recommended in areas where chemicals are being used

X. SPILLS CONTROL

Even though chemical quantities managed in labs are small, incidents involving spills can occur and an organized and quick action is required.

A spill control kit will be maintained in all labs and storage areas. These kits contain the following materials:

1. Absorbing pillows
2. Pads
3. Gloves
4. Goggles
5. Disposable bags

Instructions to respond to a small spill

1. Stay calm. Act quickly but be cautious
2. Use the appropriate PPE
3. Notify the supervisor immediately. Only one person will give the instructions
4. Evacuate the area
5. Try not to inhale the fumes. Turn on the fume hoods.
6. Keep doors and windows closed.
7. Identify the spilled material. Locate the MSDS.

Facilities Management Department
Coppin State University

Page 8 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

8. Try to stop the spill (only if it is safe for you to do so).
9. Keep adding absorbent material until the spill is contained.
10. When the spill is completely absorbed, collect the contaminated material and store it in a proper container. Label each container.
11. If you have a large spill, call the Office of Facilities Management.

Compress gas cylinders leaks

1. Usually, leaks on compress gas cylinders are on or near the valve. If you do not have a gas detector use soapy water to identify the leak. Never use an open flame.
2. Provide proper ventilation to the area.
3. Notify the Office of Facilities Management.

Reports

1. Immediately notify the following information to the Safety and Environmental Manager:
 - a. Location (building and room) of the spill
 - b. Time
 - c. Name and estimated quantity of the spilled material
 - d. If there are any affected individuals
 - e. If it is contained
 - f. If the material reached a drainage or the ground
2. The designated personnel will contact the regulatory agencies as required by law.
3. A detailed report will be prepared to document the incident. The report should include the following information:
 - a. Location (building and room of the spill)
 - b. Date and time
 - c. What caused the spill
 - d. Name and quantity of the spilled material
 - e. Affected areas
 - f. Who clean the area
 - g. Amount of hazardous wastes generated
 - h. Notified regulatory Agencies, name of the person contacted and date of the call

Facilities Management Department

Coppin State University

Page 9 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

i. Corrective actions

XI. GLASSWARE MANAGEMENT

The use of glassware is a common practice on labs, but the misuse of the equipment can result in cut, burns and other hazardous incidents.

When handling glassware:

1. Carefully inspect the glassware before and after each use. Dispose broken or cracked glassware in the proper container.
2. Only use proper lab glassware. Do not use any other household type of glass to handle hazardous materials. Lab glassware is designed to be use with harsh chemicals.
3. Always follow the procedure and the instructions given by the professors.
4. Always clean and inspect the glassware after using it.
5. Do not store wet glassware; always dry it before storing it.

XII. MEDICAL EMERGENCIES ON LABORATORIES

All emergency situations should be notified to Public Safety. Call 410-951-3900 from any phone and have the following information available:

- Room number and building name
- Phone number
- Name and age of the victim (if available)
- Current state of the victim
- Description of the event

XIII. HAZARDOUS WASTES MANAGEMENT

The hazardous wastes management is regulated by the Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA) and by the Maryland Department of the Environment. Every person working in a lab is responsible for the correct labeling of each hazardous wastes container. Disposals with an authorize company will be held at required intervals.

Criteria to identify a waste as hazardous waste:

Facilities Management Department

Coppin State University

Page 10 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

1. Listed
 - a. Included on the list in the 40 CFR 261.31-33
2. Exhibits one of the following characteristics:
 - a. Ignitability – Flash point less than 140°F
 - b. Corrosivity – pH less than or equal to 2 or greater than or equal to 12.5
 - c. Reactivity – generates violent reactions and or produces toxics vapors when mixed with water, light, heat
 - d. Toxicity – determined using the Toxicity Characteristic Leaching Procedure (TCLP)

Select the right container for the wastes being generated. Label each container properly and keep a log with the following information: type of hazardous waste, quantity and date.

Hazardous wastes can only be stored for 90 days (if you are a large quantity generator). The storage area must have fire extinguishing equipment, spill control equipment, controlled access, telephone access, and should be inspected on a weekly basis. A log of the inspections shall be maintained on site.

All containers with hazardous wastes should be identified with the words: "HAZARDOUS WASTES" and its contents. No chemical formulas should be used on the labels, use the complete name of the chemicals stored on each container.

No hazardous substance should be pour down the drains. All wastes shall be collected, identified and disposed of through an authorized company. A manifest will accompany the hazardous wastes to its final destination and a signed copy will be returned to the generator within 25 days. All records must be kept for three years.

XIV. ACQUISITION OF HAZARDOUS CHEMICAL SUBSTANCES

Before a substance is received, information on proper handling, storage, and disposal should be known to those who will be using it. No container should be accepted without an adequate identifying label.

Chemical substances will only be acquired, in the minimum required quantities, to minimize safety issues.

Facilities Management Department

Coppin State University

Page 11 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

XV. MEDICAL SURVEILLANCE

Employees working with hazardous substances in labs should receive medical attention if:

1. The employee develops symptoms or signs of exposure to the hazardous substance being used.
2. When the exposure level or the permissible exposure limit (PEL) is routinely exceeded.
3. When a spill, explosion, leak or any other circumstance occurs and may result in an exposure to the hazardous substances being used.

If an employee has been exposed to a hazardous substance:

- Remove the employee from the exposed source.
- Provide post-exposure monitoring through Worker's Compensation Claims.

The following information shall be provided to the physician:

1. Chemical substances to which the employee has been exposed.
2. Signs and symptoms developed by the employee.
3. Description of the conditions under the exposure occurred.
4. MSDS of the substances involved in the incident.
5. Any other information relevant to the exposure incident.

The physician shall provide a written opinion to the employer. The written opinion should include:

1. Recommendations for further medical follow-up.
2. Results of medical examinations and other tests
3. Any medical condition which may be revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous workplace.
4. A statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.
5. The written opinion shall not reveal specific findings of diagnoses unrelated to occupational exposure.

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

XVI. INFORMATION AND TRAINING

Employees shall be informed of:

- The contents of the standard and its appendices.
- Location and availability of the Chemical Hygiene Plan. Employees shall know their responsibilities under the Chemical Hygiene Plan.
- The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard.
- Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.
- The location and availability of known reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets.

Employee training must include:

- The physical and health hazards of chemicals in the work area.
- Methods and observations that may be used to detect the presence or release of a hazardous chemical.
- The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.
- The applicable details of the employer's written Chemical Hygiene Plan.

XVII. RECORDKEEPING

All records related to medical surveillance, inspections and/or trainings shall be kept, transferred and made available in accordance with 29 CFR 1910.1020.

- Area and Employee monitoring
- Medical consultation and examination
- Laboratory Safety Inspections
- MSDS
- Employee trainings
- Complaints and/or Incident Reports
- Hazardous Chemical Inventories

Facilities Management Department

Coppin State University

Page 13 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

XVIII. INSPECTIONS

Frequent inspections shall be performed on laboratory equipments to guarantee their accurate performance.

| Equipment/Area | Frequency | Responsible Agent |
|---|-----------|---|
| Storage Areas <ul style="list-style-type: none">• Chemical Substances Storage Area• Hazardous Wastes Storage Area | Weekly | Lab Technicians Safety and Environmental Manager |
| Fume Hoods | Annually | External Contractor |
| Ventilation Systems | Monthly | JCI (External Contractor) |
| Smoke Detectors | | External Contractor |
| Laboratories: <ul style="list-style-type: none">• Fire extinguishers• Emergency EXITS• Emergency Safety Showers• Eye Wash• First Aid Kits• Personal Protective Equipment | Monthly | Lab Technicians Safety and Environmental Manager Facilities Personnel |

XIX. REFERENCES

- 29 CFR 1910.1450
- 29 CFR 1910.1020
- 40 CFR 261
- 40 CFR 355
- Code of Maryland Regulations (COMAR) Title 26

Facilities Management Department
Coppin State University

Page 14 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

XX. ENFORCEMENT

Compliance of this policy is mandatory to the Natural Science Department. Inspections will be performed to ensure the compliance with this policy. This policy will be maintained and enforced by the Safety and Environmental Manager.

Signature: _____

 6/17/11
Richard Siemer, V.P. Administration and Finance

Facilities Management Department

Coppin State University

Page 15 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

Appendix A

Chemical Substances Inventory

Facilities Management Department
Coppin State University

Page 17 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

Appendix B
Spills Reports Document

Facilities Management Department

Coppin State University

Page 18 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011

Coppin State University
Facilities Management Department

Chemical Hygiene Plan

Chemical Substances Spills Report

I. Building and Room Number _____

II. Date and Time of the spill _____

III. Name and quantity of the spilled substance _____

IV. Description of the event

1. What caused the spill? _____

2. Affected areas: _____

3. Affected personnel: _____

4. Who cleaned the spill? _____

5. Did it reach any drainage? _____

6. Is it contained? _____

V. Quantity of hazardous wastes generated: _____

VI. Regulatory Agencies called

Name of the person contacted: _____

Date and time of the call: _____

Signature: _____ Date: _____

Facilities Management Department
Coppin State University

Page 19 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**
Effective Date: June 17, 2011
Last Review Date: June 17, 2011

Appendix C
Laboratories Safety Inspection Document

Facilities Management Department

Coppin State University

Page 20 of 20

Policy Title: **CHEMICAL HYGIENE PLAN**

Effective Date: June 17, 2011

Last Review Date: June 17, 2011



COPPIN STATE UNIVERSITY

Office of Facilities Management
Laboratory Safety Inspection Checklist

Building: Percy Julian Science Department: Natural Science & Art Floor: _____
 Inspector: Maria del R. Castro Date: _____
 Lab No. _____ PI/Supervisor: _____

| Items | Yes | No | NA | Comments |
|--|-----|----|----|----------|
| Is the contact information posted at door signs? | | | | |
| Are Emergency numbers posted by telephone? | | | | |
| Is there present a copy of the Chemical Hygiene Plan with SOP's and GLP's? | | | | |
| Is there evidence of employee training? | | | | |
| Is there a copy of the Chemical Inventory of the area? | | | | |
| PERSONAL PROTECTIVE EQUIPMENT | | | | |
| • Lab coats | | | | |
| • Safety Glasses | | | | |
| • Other required PPE | | | | |
| SAFETY EQUIPMENT PRESENT AND IN WORKING CONDITION | | | | |
| • Emergency shower | | | | |
| • Emergency Eye-wash | | | | |
| • Drench hose | | | | |
| • Fire extinguisher | | | | |
| • Fume hood | | | | |
| • Biological Safety Cabinet | | | | |
| • Spill kits | | | | |
| CHEMICAL STORAGE | | | | |
| • Are all containers of chemical substances labeled? | | | | |
| • Are gas cylinders secured and capped? | | | | |
| • Are chemical substances stored in shelves and/or cabinets? | | | | |
| • Are chemical substances stored by class and compatibility? | | | | |
| • Are large containers stored on low shelves? | | | | |
| ELECTRICAL HAZARDS | | | | |
| • Extension cords not in use (they are prohibited by regulation) | | | | |
| • Outlet extenders not in use (they are prohibited by regulation) | | | | |
| • Are electrical cords in good condition? | | | | |
| • Are aisles kept clear? | | | | |
| • Is the work area neat? | | | | |
| • Is eating, drinking and smoking prohibited in the Lab? | | | | |
| WASTE HANDLING | | | | |
| • Is chemical waste managed properly? | | | | |
| • Is biological waste managed properly? | | | | |
| • Are glassware/plastics/sharps managed properly? | | | | |

Signature: _____ Date: _____