

# Laboratory Safety Chemical Hygiene Plan (CHP)

The Occupational Safety and Health Administration's (OSHA) Occupational Exposure to Hazardous Chemicals in Laboratories standard (29 CFR 1910.1450), referred to as the Laboratory standard, and specifies the mandatory requirements of a Chemical Hygiene Plan (CHP). The CHP is a written program stating the policies, procedures and responsibilities that protect workers from the health hazards associated with the hazardous chemicals used in that particular workplace.

## 1. BASIC RULES & PROCEDURES

The standard requires that Canton City Public Health (CCPH) employees work cooperatively in providing a safe and healthful work environment with training, evaluations and periodic meetings that ensure that all staff is aware of and comply with safeguards that are in place to limit accidents and injuries by the following basic rules:

- Institute a Chemical Hygiene Program at the Work Site.
- Avoid Underestimation of Risk
- Provide Adequate Ventilation When Working With Chemicals
- Minimize Chemical Exposures
- Observe the Permissible Exposure Limits (PEL's) and Threshold Limit Values (TLV's) as defined by the SDS for all chemicals in use at the work site.

## 2. PROCUREMENT/HAZARD DETERMINATION/CHEMICAL INVENTORY

General Considerations:

- **Procurement:** Before a substance is received, information on proper handling, storage, and disposal will be known to those who will handle, store, work with or dispose of the substance.
- **Laboratory storage:** Amounts stored will be as small as practical. A **Laboratory** means a facility where the laboratory use of hazardous chemicals occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis. Laboratory scale means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person.
- **Distribution:** When chemicals are hand carried outside of the immediate work area, the container will be placed in a suitable outside container or bucket. Freight only elevators should be used if possible.

Information supplied by the manufacturers will be relied upon for the hazard determination.

- A **hazardous chemical** means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

- A **physical hazard** means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.
- A **health hazard** includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes, or mucous membranes.

It is the policy of CCPH to request a SDS for each chemical that is used in the workplace, with the exceptions listed below.

Laboratory uses of hazardous chemicals that provide no potential for employee exposure.

Examples of such conditions might include:

- Procedures using chemically-impregnated test media such as dip-and-read tests where a reagent strip is dipped into the specimen to be tested; and
- Commercially prepared kits, such as pregnancy tests, in which all of the reagents needed to conduct the test, are contained in the kit.
- Medications and drugs are considered exempt from the Hazard Communication Plan when it is determined that are in solid, final form, for direct administration to the patient (i.e., tablets, pills, capsules).
- Consumer products, when it is determined that they are used in the same manner and with no more frequency than a normal consumer would use them.

The chemical inventory is monitored, and training updates are coordinated by the Laboratory Manager and updated whenever one or more of the following occurs:

- A new hazard is introduced into the workplace.
- A hazard has been removed from use in the workplace.
- The hazard determination process is reviewed to ensure that it is current and that any new safety situations are promptly addressed.

### **3. HOUSEKEEPING, INSPECTIONS & MAINTENANCE**

- Housekeeping. Floors will be cleaned regularly. The cleaning schedule with particulars listed for CCPH is posted in the Fiscal Managers (FM) office. The FM is responsible for managing the housekeeping contracts. Any concerns with housekeeping should be brought to the FM's attention.
- Inspections. Chemical hygiene inspections are informal and done as a part of routine daily activities.
- Passageways. Stairways and hallways will not be used as storage areas. Access to exits,

emergency equipment, and utility controls will never be blocked.

- Maintenance - As applicable- and documented – for CCPH. Eye wash fountains are inspected regularly. Respirators (if supplied) for routine use will be inspected periodically by the laboratory supervisor or representative. Safety showers are tested routinely. Other safety equipment will be inspected regularly. Procedures to prevent restarting of out-of-service equipment will be established. Records are maintained by the Laboratory Director.

#### **4. HAZARD LABELING SYSTEM**

In accordance with the OSHA hazardous work in laboratories standard, chemical hazard labels are to be legible, in English, and displayed either on the container (of the product) or readily available in the work area throughout each work shift. The immediate work area is defined as the room where the product will be used by the employee. In keeping with the interpreted intent of the law, it is the policy to ensure that the employee is familiar with the hazards they have contact with and that there is a label available to remind or warn them of the hazards.

A label will be provided for each chemical product that will include an indication of the hazards presented by the product in each of four areas fire, reactivity, health, and special hazards. Special safety equipment, which is required to handle hazardous products, will be indicated on the label. Prominent signs and labels of the following types are posted.

- Emergency telephone numbers of emergency personnel/facilities, supervisors, and laboratory workers,
- Identity labels, showing contents of containers (including waste receptacles) and associated hazards,
- Location signs for safety showers, eyewash stations, other safety and first aid equipment, exits and areas where food and beverage consumption and storage are permitted,
- Warnings at areas or equipment where special or unusual hazards exist.

#### **5. CHEMICAL SPILL RESPONSE**

The initial step in controlling any type of spill is prevention. All hazardous chemicals should be handled with care and with appropriate PPE. The cleanup process for spills is much more costly than slowing down to be cautious when working with these items.

##### Spill Control Policy for CCPH

All accidents or near accidents should be carefully analyzed with the results distributed to all who might benefit. In the event of a chemical spill, the safety data sheet will be referred to for proper spill response procedures. These will include appropriate materials to be used for collection of the material (i.e., absorbents, spill kit materials), as well as protective measures to be taken with the particular product. Below, are outlined some basic steps for responding to a chemical spill should one occur:

- Alert people in all parts of the facility - if applicable.
- Determine what has been spilled and locate the safety data sheet (SDS) for the product.
- If the product is toxic, evacuate personnel from the area.
- Provide adequate ventilation as described on the SDS. Try to contain the spill from spreading with absorbent material.
- Cleanup personnel must use proper personal protective equipment as described for spill response (within the SDS).
- If the SDS is incomplete, professional judgment will be used in the absence of specific spill response information. The manufacturer may be contacted for further information if time allows.
- Dispose of clean up materials as recommended by the manufacturer and in accordance with local, state, and federal regulations. Ensure that materials saturated with flammable liquids are placed into containers that will limit the potential for combustion and subsequent fire hazards.
- An incident report must be completed and turned into management for review and discussion with other staff so that recurrence of the incident can be avoided.

General Spill kits and mercury spill kits for this facility are located on the wall of the central area of the laboratory.

## **6. MEDICAL PROGRAM**

The CCPH will provide all personnel who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines to be necessary, under the following circumstances:

- Whenever a worker develops signs or symptoms associated with a hazardous chemical to which the worker may have been exposed in the laboratory, the worker will be provided with an opportunity to receive an appropriate medical examination.
- Where exposure monitoring reveals an exposure level routinely above the action level (or in the absence of an action level, the PEL) for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, medical surveillance will be established for the affected worker(s) as prescribed by the particular standard.
- Whenever an event takes place in the work area such as a spill, leak, explosion, or other occurrence resulting in the likelihood of a hazardous exposure, the affected worker(s) will be provided an opportunity for a medical consultation to determine the need for a medical examination.

All medical examinations and consultations will be performed by or under the direct supervision of a licensed physician and be provided without cost to the worker, without loss of pay and at a reasonable time and place.

Regular medical surveillance will be established to the extent required by regulations (per SDS's) at the CCPH.

Personnel trained in first aid will be available during working hours and an emergency room with

medical personnel is nearby. Mercy Medical Center is the nearest emergency room, only 1.9 miles from the main office building and Aultman Hospital is 2.0 miles. From the Recycling Center Aultman hospital has the nearest emergency room, 1.3 miles, and Mercy Medical Center has the next closest facility, 1.7 miles.

### **7. PPE SELECTIONS, PROVISION, USE AND ACCESSIBILITY**

Personal protective equipment (PPE) is provided to employees of CCPH for the protection of eyes, face, head, and extremities, where there is a potential for injury or impairment in the function of the body through absorption, inhalation, or physical contact. The PPE for employees has been selected based upon the type of task being performed and the degree of exposure anticipated from the hazard to which the employee has been exposed. Equipment is maintained in accordance with the manufacturer’s guidelines to ensure its proper functioning and is available in sizes to fit all staff. The use of personal protective equipment is a condition of employment. Employees who choose to disregard the importance of personal protective equipment may be subject to reprimand and potential dismissal from their position.

Annual employee training regarding personal protective equipment will include:

- when PPE is required to be used,
- what PPE is necessary for specific tasks,
- how to properly wear, use and adjust PPE,
- the proper care, maintenance, limitations, useful life and disposal of PPE.
- Other items designated by the laboratory supervisor may be required.

Examples of PPE provided and their intended use at CCPH are as follows.

<b>Item</b>	<b>Location</b>
Fire Extinguishers	Laboratory exit door, Air Pollution exit door, Environmental Health rear exit door, and other locations throughout the main building.
Fire Alarms	3 fire alarms are located on the first floor of the building, none in the lab. There is 1 each in the front entrance and rear entrance lobbies and one at the nursing entrance to the nursing storage equipment room.
Emergency Phones	All phones are considered emergency phones

Safety Shower/Eyewash Fountain	One shower is in the central area of the laboratory. Eyewash stations are found in all nursing clinic rooms where blood and blood products may be handled.
Safety Goggles/glasses	Multiple styles and sizes can be found in the laboratory STD room cabinet. They are easily visible through the glass of the tall shelves.
Lab Coats	Lab Coats for hazardous spills can be found in the spill kits as well as under the sink in the main lab.
Masks	Masks are located in the spill kits.

Lab coats, gowns or other protective clothing are worn whenever there is the reasonable potential for the soiling of clothes when working with hazardous chemicals or blood and body fluids. The protective garments have been selected to meet the type and amount of soiling expected to be present during a specific task. The safety data sheets of hazardous chemicals will be reviewed to select proper PPE for a given product.

#### Protective Eye Wear and Masks

Protective eye wear, masks, and/or face shields are utilized whenever there is the potential for the generation of splashes, spills, spray, splatter, droplets, or aerosols of chemicals and there is the potential for eye, nose, or mouth contamination. Appropriate eye wear, masks, or shields will be worn as recommended by the manufacturer of a hazardous product.

#### Gloves

When working with hazardous chemicals, blood or body fluids, gloves will be worn according to manufacturer recommendations. General-purpose gloves, not used for healthcare purposes, may be decontaminated, and reused. Gloves are not to be used if they are peeling, cracking or discolored, or if they have punctures, tears, or other evidence of deterioration.

#### Maintenance and Replacement of PPE

Laboratory personnel will periodically survey PPE to ensure its condition allows for the intended protection of the employee. Employees will immediately notify supervision of any damage or defects that make the PPE incapable of properly protecting them. Repair and/or replacement of personal protective equipment are provided by the employer as needed to maintain its effectiveness.

Necessary cleaning, laundering or disposal of personal protective equipment is provided by CCPH.

Linens are **NOT** to be taken home by the employee for laundering.

Employees will not be responsible for the cost of any personal protective equipment that is required to protect them from exposure to chemical or biohazards in the workplace.

## 8. RECORDS

- Accident records must be written with any follow-up or corrective actions taken. Accident records are maintained in the laboratory unless there is medical information.
- Chemical Hygiene Plan records must document that the facilities and precautions were compatible with current knowledge and regulations.
- Inventory and usage records for high-risk substances, if present, will be kept at CCPH.
- A Complete Chemical Inventory list will be maintained as the SDS list, the list will include the date of the most recent SDS as well as the chemicals storage location. The list will be maintained in the SDS notebook.

Medical records – CCPH will establish and maintain for each employee an accurate record of any measurements taken to monitor employee exposures and any medical consultation and examinations including tests or written opinions required by this standard. CCPH will ensure that such records are kept, transferred, and made available. All medical records will be retained by CCPH in accordance with the requirements of state and federal regulations for at least the duration of employment plus 30 years.

All training records will include the following information and will be maintained for three years from the date on which the training occurred: Documentation of the training will be maintained in employee personnel files or in a master training file.

- The dates of the training sessions,
- The contents or a summary of the training sessions,
- The names and qualifications of persons conducting the training,
- The names and job titles of all the people attending the training sessions.
- Safety Data Sheets are to be retained for 30 years from the date of removal from the active file. As of the printing of this document the expired SDS's are in the bottom drawer of the general information file cabinet in the lab.

## 9. SAFETY DATA SHEETS

Safety data sheets are maintained at CCPH to comply with OSHA's Hazardous Work in Laboratories Standard. Safety data sheets contain useful information regarding the hazards associated with products or chemicals used in the facility. Employees are not required to memorize the information contained within the data sheets but are provided with training so that they can locate them and find information such as:

- Flammability Hazard, Reactivity Hazard, Health Hazard, Precautions for Safe Handling and Use, and Control Measures.

This information will ensure that chemicals and products are used in a safe manner and that employees are aware of the hazards associated with those items.

- It is the responsibility of CCPH to collect safety data sheets for each hazardous chemical or product that is used in the facility. The suppliers and manufacturers of such products are required to supply safety data sheets along with the first order of each product. If a safety data sheet is not received with the first order, one will be requested.
- For hazard labeling to be completed, certain information must be provided on the SDS. If any necessary information is missing, the manufacturer will be contacted to obtain it.
- Employees must be advised of the location of the safety data sheets.
- When new or revised data sheets are received employees must be notified and available for immediate review and then included in the designated SDS file.

If an SDS is removed because it has been revised or the product is no longer used, the data sheet must be marked with the date it was removed and then placed in a separate file of archived data sheets. These data sheets are to be retained for 30 years from the date of removal from the active file.

SDS sheets for CCPH are located adjacent to the large refrigerator near the exit to the air pollution lab. Additional SDS sheets for cleaning chemicals stored on the 2<sup>nd</sup> floor can be found in the basement lobby. SDS sheets for chemicals stored in the recycling center can be found in the recycling center office beside the exterior exit door.

## **10. WASTE MANAGEMENT**

Chemical waste (or hazardous products) is disposed of in accordance with information provided on the SDS by the products manufacturer at CCPH. Should the SDS fail to provide adequate instruction, the manufacturer is contacted by telephone or email for further information on proper disposal of the product.

If the chemical waste has become contaminated with blood or other potentially infectious materials, then it will be disposed of in accordance with the guidelines set forth for infectious waste.

- **Content:** The waste disposal program at CCPH must specify how waste is to be collected, segregated, stored, and transported and include consideration of what materials can be incinerated.
- **Aim:** To ensure that minimal harm to people, other organisms, and the environment will result from the disposal of waste laboratory chemicals. Transport from the institution must be in accordance with DOT regulations.
- **Discarding Chemical Stocks:** Unlabeled containers of chemicals and solutions must undergo prompt disposal; if partially used, they should not be opened. Before a worker's employment in the laboratory ends, chemicals for which that person was responsible will be discarded or

returned to storage.

- Frequency of Disposal: Waste will be removed from laboratories, and not permitted to accumulate at regular intervals.
- Method of Disposal: Waste will be disposed of in accordance with SDS labels. Incineration in an environmentally acceptable manner is the most practical disposal method for combustible laboratory waste. Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is unacceptable.
- Hoods will not be used as a means of disposal for volatile chemicals.
- Disposal by recycling or chemical decontamination will be used when possible.

## 11. EMPLOYEE INFORMATION AND TRAINING

The Laboratory Manager will coordinate and maintain records of training conducted for CCPH. The training and education program will be a regular, continuing activity--not simply an annual presentation at CCPH.

- Before any new hazardous chemical is introduced into the workplace, each employee will be given information in the same manner as during the initial safety class.
- Before starting work, at the time of their initial assignment, each new laboratory employee at CCPH will attend a safety class.
- In that class, each employee will be given information on:
  - < Location and availability of this Chemical Hygiene Plan
  - < Details of the written Chemical Hygiene Plan
  - < Chemicals and their hazards in the workplace.
  - < PEL's for OSHA regulated substances or exposure limits in use at CCPH. This information is in the SDS.
  - < How to lessen or prevent exposure to these chemicals.
  - < Signs and symptoms associated with exposure to hazardous chemicals.
  - < What CCPH has done to lessen or prevent workers' exposure to these chemicals?
  - < Protective measures employees can take to protect themselves from chemical exposures, such as PPE, work practices, and emergency procedures.
  - < Methods and observation that may be used to detect the presence of, or release of a hazardous chemical such as monitoring and the visual or odor of hazardous chemicals when being released.
  - < Procedures to follow if they are exposed.
  - < How to read and interpret labels and SDS's.
  - < Where to locate SDS's at CCPH and from whom they may obtain copies.

The employee will be informed that:

CCPH is prohibited from discharging, or discriminating against, an employee who exercises the rights regarding information about hazardous chemicals in the workplace.

As an alternative to requesting an SDS, the employee may obtain a copy from the product manufacturer.