

CHAPTER 25 – CHEMICAL HAZARD COMMUNICATION

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CHAPTER 25 - CHEMICAL HAZARD COMMUNICATION

A. INTRODUCTION

1. All Smithsonian Institution (SI) employees engaged in operations involving the handling or use of hazardous chemicals shall be made fully aware of the associated hazards and the measures necessary to protect themselves against these hazards.
2. The SI Chemical Hazard Communication Program (CHCP) is based on the Occupational Safety and Health Administration (OSHA) Standard [29 Code of Federal Regulations \(CFR\) 1910.1200](#), "Hazard Communication."
3. This Chapter applies to all SI operations involving the storage and use of hazardous chemicals, as defined in Section C of this Chapter.

B. CHAPTER-SPECIFIC ROLES AND RESPONSIBILITIES

1. Safety Coordinators shall:
 - a. Develop and implement a written, Facility-Specific Chemical Hazard Communication Plan, in accordance with this Chapter.
 - b. Maintain Material Safety Data Sheet (MSDS) files for all on-site hazardous chemicals.
 - c. Ensure hazard communication training is provided to employees who may be exposed to hazardous chemicals.
 - d. Ensure archival records (e.g., MSDSs, chemical inventories) are maintained, in accordance with this Chapter.
2. Supervisors shall:
 - a. Provide new employees with hazard communication training before they begin any assigned duties with hazardous chemicals.
 - b. Provide affected employees with hazard communication training when new hazards, hazardous chemicals, or processes are introduced into the workplace.
 - c. Ensure hazardous chemical exposure evaluations are performed as part of a workplace Job Hazard Analysis (JHA, refer to [Chapter 4, "Safety Risk Management Program,"](#) of this *Manual*).
 - d. Label hazardous material containers, storage areas, and collections that may contain hazardous chemicals, with appropriate hazard warnings.
 - e. Incorporate hazard communication training into supervisory safety talks, as applicable.

- f. Maintain accurate hazardous chemical inventories, and provide the Safety Coordinator with current MSDSs for chemicals used in their assigned operations.
3. Employees shall:
 - a. Review container labels and product MSDSs prior to using a hazardous chemical.
 - b. Wear approved personal protective equipment (PPE) as assigned, and use proper/safe work practices.
 - c. Inform supervisor of engineering control or PPE malfunction.
 - d. Report chemical accidents and possible health symptoms to supervisor immediately.

C. HAZARD IDENTIFICATION

1. A “hazardous chemical,” as regulated by this Chapter, is any chemical that is a physical hazard or a health hazard, where:
 - a. Physical hazard means a/an combustible liquid, compressed gas, explosive, flammable, organic peroxide, oxidizer, pyrophoric, unstable (reactive) or water-reactive chemical.
 - b. Health hazard means a chemical that may produce acute or chronic health effects in exposed employees.
2. Health and safety hazards posed by chemicals shall be identified and evaluated, by the supervisor with assistance from the Safety Coordinator and OSHM, during the JHA process.
3. Employee exposure monitoring for specific hazardous chemicals will be performed by OSHM to identify employees at risk of exposure and to recommend control measures, per [Chapter 39, “Exposure Assessment and Medical Surveillance”](#), of this *Manual*.

D. HAZARD CONTROL

1. Written Facility-Specific Chemical Hazard Communication Plan (CHCP)
 - a. The Safety Coordinator shall develop and implement a written facility-specific CHCP, using Attachment 1 as a template. The facility-specific CHCP shall include how the facility intends to:
 - (1) Maintain its hazardous chemical inventory, and where the historic inventories are archived;
 - (2) Maintain Material Safety Data Sheets (MSDSs) for currently used chemicals;

- (3) Provide container labels and other forms of warning for hazardous chemicals (including collections objects containing hazardous chemicals) used on-site and shipped to other workplaces;
 - (4) Communicate information to employees about the chemical hazards to which they are exposed and the control measures in place to protect them from chemical hazards;
 - (5) Notify contractors or other non-employee facility users of chemical hazards they may encounter.
- b. Chemical Hazard Communication measures for SI laboratories will be detailed in the individual Laboratory Safety Plans required by [Chapter 26, "Laboratory Safety Plans"](#), of this *Manual*. Laboratory Safety Plans will be included in the facility-specific CHCP records.
 - c. A copy of the facility-specific CHCP will be kept by the Safety Coordinator for employee access.
 - d. The facility-specific CHCP will be updated as needed and reviewed annually by the Safety Coordinator.
2. Hazardous Chemical Inventory
- a. An inventory of the hazardous chemicals known to be present shall be maintained and revised as chemicals are discontinued, and as new chemicals are received for use at the facility. At a minimum the inventory shall identify
 - (1) Name of the hazardous chemical product as identified on its MSDS;
 - (2) The storage location; and
 - (3) The maximum quantity present at any given time.
 - b. The facility hazardous chemical inventory shall be reviewed annually by the Safety Coordinator and applicable supervisor(s) for accuracy. An annual review will assist facilities in preventing the stockpiling of hazardous chemicals and minimizing hazardous waste.
 - c. Chemicals included on the inventory shall have a referencing MSDS on file.
3. Material Safety Data Sheets (MSDS)
- a. An MSDS for each hazardous chemical used in the facility shall be maintained in the workplace, and shall be readily accessible during each work shift to employees when they are in the work area(s). The exact MSDS location(s) shall be addressed in the facility-specific CHCP, and employees shall be made aware of these locations.
 - b. The facility shall obtain and review an MSDS for each hazardous chemical before the chemical is used in the workplace.
 - c. The facility MSDS file shall be reviewed and verified annually by the Safety Coordinator and applicable supervisor(s), to validate the current

use of hazardous chemicals on-site. An updated MSDS shall be obtained if the MSDS is more than 5 years old. MSDSs shall be removed from the current file and archived if the hazardous material is no longer used at the facility (or the identity of the chemical must be archived on historic chemical inventories).

4. Labels and Other Forms of Warning
 - a. Each container of hazardous chemicals shall be labeled, tagged, or marked with the, identity of the hazardous chemical(s) contained within and appropriate words or symbols that provide adequate hazard warning as to the physical and health hazards of the chemical.
 - b. Labeling is not required for portable containers into which hazardous chemicals are transferred from labeled containers, and are intended for immediate use (within same work shift) by one person.
 - c. Existing labels (particularly DOT shipping labels) shall not be removed or defaced unless the container is immediately marked with the required information.
 - d. Labels shall be legible, in English, and prominently displayed on the container. Other languages may be used in addition to English, as needed.
 - e. Collections objects and specimens shipped from field to facility, shipped (e.g., loaned) to another facility, surplused, de-accessioned, or otherwise transferred (e.g., pursuant to the Native American Graves Protection and Repatriation Act), shall be accompanied by documentation that discloses known or suspected hazardous chemicals that might be present within the object or specimen, or its shipment fluid. Packaging, shipping documentation and shipping methods must be compliant with U.S. Department of Transportation (DOT) and International Air Transport Association (IATA) regulations. Further guidance is provided in [Chapter 24, "Collections-Based Hazards"](#), of this *Manual*.
5. Personal Protective Equipment (PPE). Employees shall wear PPE for specific hazardous chemicals as determined by the supervisor and Safety Coordinator through the JHA process, in consultation with OSHM, and in accordance with [Chapter 17, "Personal Protective Equipment"](#), of this *Manual*.

E. TRAINING AND INFORMATION

1. Employees
 - a. Chemical hazard communication training shall be provided to facility employees who use, handle, or are potentially exposed to hazardous chemicals in their work area. This training shall be provided at the time of an employee's initial assignment with hazardous chemicals and whenever a new hazardous chemical or process is introduced into the work area. The training shall include:

- (1) The requirements of the facility-specific CHCP.
- (2) Operations in the work area where hazardous chemicals are present.
- (3) The location and availability of the written facility-specific CHCP, the inventory of hazardous materials, and MSDSs.
- (4) Methods for detecting the presence or release of a hazardous chemical in the workplace (e.g., equipment or laboratory hood alarms, odor thresholds, gas detection devices)
- (5) Physical and health hazards of the chemicals used in the work area.
- (6) What an MSDS is, how to read an MSDS (i.e., what information is contained in each section), and how to obtain a copy of an MSDS.
- (7) Labeling requirements and how to read a label.
- (8) Facility-specific procedures and measures employees shall follow to protect themselves from hazards, including chemical storage, safe work practices and handling procedures, engineering controls, why the use of PPE is required, and a review of the MSDS section detailing the exposure controls and PPE requirements for each hazardous chemical.
- (9) Facility-specific procedures and measures employees shall follow in the event of an emergency, such as:
 - (a) Equipment failure;
 - (b) Hazardous material leak or spill; and
 - (c) Personnel exposure via inhalation, ingestion, or absorption/dermal contact.

2. Information Provided To Other Facility Users and Contractors

- a. Other (non-employee) facility users, including short-term visiting researchers and interns, who have the potential for exposure to hazardous materials in the course of their work at SI facilities, shall be provided with appropriate hazardous material information and recommended safe work procedures. This information may be included on a written fact sheet, copies of applicable MSDSs and/or safe operating procedures, verbal explanations of posted hazard communication signage, or any other warning appropriate to the nature of the visit or assignment
- b. Contractors shall be required to submit copies of their MSDSs for all hazardous chemicals brought into the facility prior to their use, in accordance with the submittal provisions of their SI contract. Upon completion of their work, contractors shall remove all their hazardous chemicals from the facility, unless otherwise specified in their contract.
- c. Contractors shall be responsible for training their employees, maintaining labels and MSDSs for products in use, and providing their own PPE.

F. REQUIRED INSPECTIONS AND SELF ASSESSMENTS

1. The facility-specific CHCP shall be reviewed annually by the Safety Coordinator, and updated as needed.
2. The facility hazardous chemical inventory shall be reviewed annually by the Safety Coordinator and applicable supervisor(s) for accuracy, updated, and historic inventories archived per this Chapter.
3. The facility MSDS file shall be reviewed and verified annually by the Safety Coordinator and applicable supervisor(s), to validate the current use of hazardous chemicals on-site.

G. RECORDS AND REPORTS

1. In accordance with 29 CFR 1910.1020, "Access to employee exposure and medical records," records concerning the identity of a substance or agent (i.e., the actual MSDS or the chemical inventory), where it was used and when it was used, must be retained by the facility for at least 30 years. It is recommended that the chemical inventories be archived (electronically preferred) by the facility or department.
2. Maintain signed training attendance lists of employees who have received initial and recurrent hazard communication training on-site for the duration of their SI employment. Include the topics covered and the date the training was conducted.

H. REFERENCES

1. [29 CFR 1910.1200: Hazard Communication](#)
2. [OSHA Hazard Communication Index](#)

Template for Facility-Specific Chemical Hazard Communication Plan

CHEMICAL HAZARD COMMUNICATION PLAN FOR [FACILITY/ORGANIZATION] Smithsonian Institution

Reviewed and approved:

[Signature of Facility Director, Date]

1. GENERAL

The purpose of this document is to ensure that the [Facility] complies fully with the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and the *SI Safety Manual* in providing employee with information regarding the hazards of working with chemicals in their specific workplace, and the measures necessary to protect themselves against these hazards.

Points of contact for this program are:

[List all pertinent names and telephone numbers, such as: Safety Coordinator, local Safety Committee member, Security Office, Hazardous Waste Coordinator, Radiation Safety Officer]

2. CHEMICAL INVENTORIES (to be updated at least annually)

[Explain how you wish the inventories to be collected, on what database or with what format; and where you expect them to be maintained and archived. Suggested: one copy in each department, one with the Safety Officer, one with Security Office for quick access by fire fighters or other emergency responders].

Minimum information must include the name - corresponding to the MSDS "official" name - location - and quantity.

3. MATERIAL SAFETY DATA SHEETS (MSDSs)

MSDSs for all hazardous materials in [location], will be maintained [where]. (Based on facility size and layout, decide if you want a central library or an MSDS center in each department or building, specific to that area). The MSDS provided by the manufacturer must be current to within 5 years and comply with OSHA requirements to include the following information:

- ✓ The name of the chemical

- ✓ Name, address, and phone number of the manufacturer
- ✓ List of the chemical's ingredients
- ✓ Permissible Exposure Limits (PEL) or Threshold Limit Value (TLV)
- ✓ The conditions or other substances that will cause the chemical to burn, explode, melt, or generate dangerous gases
- ✓ The physical appearance of the chemical (how it looks or smells)
- ✓ Firefighting procedures
- ✓ Spill and leak procedures
- ✓ Ways to prevent overexposure
- ✓ Health hazards (e.g., skin irritant, carcinogen)
- ✓ Symptoms of overexposure
- ✓ What to do if you are overexposed
- ✓ When the MSDS was prepared

All incoming chemical shipments should contain an MSDS for that chemical. If not, the shipping office or user is to immediately contact the vendor for a copy.

4. LABELS OR OTHER FORMS OF WARNING

All hazardous chemicals in the facility are to be properly labeled with the chemical identity, appropriate hazard warning, and name and address of the manufacturer, importer, or responsible party. Immediate use containers for chemicals that will be used on that shift need only to be labeled with the chemical identity. Refer to the manufacturer's label information for hazard warnings to be placed on in-house containers or signs.

Collection objects and specimens that contain hazardous materials inherent to the item, or as a result of treatment or intervention (ex: pesticide and preservatives), to which an employee may be exposed during the handling of the item, must be identified in an appropriate manner, as to the name of the hazardous chemical, its primary physical and/or health hazard, and any other suitable hazard warning. This signage can be by object, or by collections area, in a manner practical to convey the warning. Hazard communication information must also accompany loans and deaccessioned objects and specimens.

5. TRAINING

Each employee, intern, docent, or visiting researcher, who works with or is potentially exposed to hazardous chemicals, will receive initial training on the Hazard Communication Program and safe use of those chemicals. This training is to be done at initial orientation and prior to working with chemicals, and upon introduction of new chemicals and chemical processes to the workplace. **[Describe facility specific training schedule and procedure]**. The Safety Coordinator, and/or OSHEM can assist supervisors in conducting this training. A useful tool is the SI-specific Power Point slide presentation "Basic Chemical Hazard Communication Training".

A copy of all training documentation is to be sent to [insert name of facility Safety Coordinator]. The training will include:

- ✓ The requirements of the Hazard Communication Standard, and the contents of the facility-specific plan.
- ✓ All operations in the work area where hazardous chemicals are present.
- ✓ The location and availability of the written facility hazard communication plan, including the inventory of hazardous chemicals and the use and location of material safety data sheets.
- ✓ Methods and techniques that may be used to detect the presence or release of a hazardous chemical in the workplace.
- ✓ Physical and health hazards of the chemicals used in the work area.
- ✓ The measures employees are to follow to protect themselves from recognized hazards, including facility-specific procedures implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency and spill response procedures, and use of personal protective equipment. This would include routine and non-routine work tasks.

6. OUTSIDE CONTRACTORS

[Name of person responsible] will advise outside contractors of any chemical hazard that may be encountered in the course of their work on the premises. Likewise, contractors are required to submit copies of the MSDSs for all hazardous chemicals brought into the facility prior to their use. These MSDSs are to be given to [name] for review and approval [specify time frame] days prior to their use. Upon completion of their work, contractors will remove all hazardous chemicals from the facility, unless otherwise specified in their contract.