NIH Division of Occupational Health and Safety

Hazard Communication Program

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ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
CHP	Chemical Hygiene Plan
DASHO	Designated Safety and Health Official
DEP	Division of Environmental Protection
DS	Division of Safety
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
HCP	Hazard Communication Program
IC	Institutes and Centers
NIOSH	National Institute of Occupational Safety and Health
NIH	National Institutes of Health
NLM	National Library of Medicine
OMS	Occupational Medical Services
ORS	Office of Research Services
OSHA	Occupational Safety and Health Administration
OSHC	Occupational Safety and Health Committee
PEL	Permissible Exposure Limit
PI	Principal Investigator
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
TLV	Threshold Limit Value published by ACGIH

INTRODUCTION

The National Institutes of Health (NIH) is committed to providing a safe and healthy work environment. The purpose of the NIH Hazard Communication Program (NIH HCP) is to increase employee awareness of hazardous chemicals used in the workplace so that they can recognize known and potential hazards and take proactive measures to minimize harm to themselves, others, and the environment. The comprehensive approach outlined in the NIH HCP will reduce employee exposure to potential chemical hazards. Potential chemical hazards consist of two main categories: chemical hazards during normal conditions and foreseeable emergencies. Additionally, the HCP improves the quality and consistency of hazard information in the workplace: making it safer for workers by providing easily understandable information on appropriate handling and safe use of hazardous chemicals. The ultimate goal of these efforts is to empower the individual worker with knowledge and skills so that they can take measures independently of the NIH policies to protect themselves, coworkers, and the environment.

The NIH HCP complies with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200. Success of the program depends on the joint efforts of administration, managers and supervisors, Division of Safety (DS), and NIH employees.

The NIH HCP has been established to provide information to employees about chemical hazards. This information is communicated in three primary ways:

1. Safety data sheets (SDSs);
2. Warning labels and signs; and
3. Training employees on chemical hazards in the workplace.

The first sections of the NIH HCP describe the responsibilities that NIH management, supervisors, and employees have in developing, implementing, and maintaining the NIH HCP. It also describes how each of these communication methods listed above is used to inform employees of the hazardous properties of the chemicals in their workplace and to safely handle, store, and use those agents.

The ending sections include a summary of the NIH HCP, along with a checklist of how to implement the program.

THE NIH HAZARD COMMUNICATION PROGRAM (NIH HCP)

Policy Statement

It is the policy of NIH that all employees who potentially are exposed or knowingly handle hazardous chemicals in their assigned jobs shall be fully informed of both the hazardous properties of the chemicals, and the protective measures available to minimize adverse exposure to these chemicals. This information is made available to employees by means of;

labels on chemical containers, SDSs, and training. Employees will be informed of any known hazards associated with chemicals to which they may be potentially exposed before their initial assignment and whenever the hazards change.

Scope

The NIH HCP provides the mandatory minimum requirements for safe use of hazardous chemicals. The HCP effects all employees with the exception of employees working in research laboratories; employees using food, food additives, color additives, drugs, cosmetics, or medical or veterinary devices or products; and administrative employees whose use of hazardous chemicals only in non-routine/isolated instances. Research laboratories are defined as facilities where hazardous substances are designed to be easily and safely transferred and manipulated by one person and are used on a non-production basis. Employees who work in a research laboratory will follow the NIH Chemical Hygiene Plan. Employees who use food, food additives, color additives, drugs, cosmetics, pesticides, or medical or veterinary devices or products are required to follow the FDA 21 U.S.C. 301 regulations. Administrative employees who do not routinely encounter hazardous chemicals are not at risk for occupational exposure to hazardous chemicals and are not covered by the NIH HCP.

All supervisors in effected areas must determine which chemicals may present a hazard to their employees based on the physical and chemical properties of the substance; potential health effects; and how the substance is used. The supervisor shall create and maintain a hazardous chemical inventory including chemicals in active use and storage for their areas of responsibilities.

For assistance in determining which program or policy covers your work activities, please contact DS for assistance.

RESPONSIBILITIES

Effective hazard communication can be accomplished when responsible management and responsive employees work together in developing and implementing an integrated hazard communication program. The NIH HCP is performance-based, allowing for flexibility in implementing the program components depending on the needs of the employees within the various work environments. The roles and responsibilities of NIH management and employees are outlined below.

Responsibilities of the Director, NIH

The Director, NIH, is ultimately responsible for the health and safety of all NIH employees. The Director has delegated the authority to manage and administer the occupational safety and health programs to the Designated Safety and Health Official (DASHO).

Responsibilities of the Non-laboratory Supervisor

Supervisors who do not oversee employees in laboratories and support research functions (e.g., housekeeping, animal care, engineering services, maintenance, and facilities, etc.); or

those who manage administrative areas, are responsible for knowing the chemical hazards in work areas under their direct control. These supervisors must provide the necessary directions to ensure the effective implementation of the NIH HCP for the employees' work locations.

At the time of the employee's initial assignment, the supervisor is responsible for:

1. Identifying chemicals that pose a potential health or physical risk to employees in their work area;
2. Ensuring that employees are made aware of the potential hazards associated with those chemicals, including the availability of chemical specific information (e.g., Safety Data Sheets (SDS));
3. Maintaining an inventory list of hazardous chemicals, SDSs for chemicals used in the workspace, and maintenance of labels on hazardous chemical containers;
4. Confirm SDSs have all relevant sections including pictograms (chemical manufacturers must be contacted for compliant SDSs.);
5. Ensuring that employees minimize any potential exposure through the use of available engineering or facility design features (e.g., specialized ventilation devices such as hoods, physical barriers, etc.), safe work practices, and necessary or assigned personal protective equipment;
6. Providing employees with guidance and training specific to their work;
7. Coordinating employee medical consultation and/or surveillance with the Occupational Medical Service if overexposure to a hazardous chemical is suspected;
8. Reporting to the DS or the NIH Occupational Safety and Health Committee problems pertaining to the implementation of the NIH HCP.

Responsibilities of the Principal Investigator and Laboratory Supervisor

The NIH Chemical Hygiene Plan (NIH-CHP) governs the use of potentially hazardous chemicals in laboratories; therefore, laboratory supervisors are exempt from certain provisions found in the NIH HCP.

The Principal Investigator or laboratory supervisor shall ensure that chemical labels are not removed or defaced; and maintain and make SDS available to employees. Refer to the OSHA Laboratory Standard and the NIH-CHP for specific requirements affecting laboratory operations.

Responsibilities of the Employee

Employees could affect their work environment by gaining knowledge about the chemical hazards associated with their work; and applying this knowledge to reduce the risk of injury and adverse health effects to themselves, coworkers, and visitors in their work area.

Each employee is responsible for:

1. Performing work in a safe manner;
2. Understanding and complying with all applicable provisions of the NIH HCP;
3. Following all standard operating procedures for their worksite;
4. Adhering to the precautions outlined on container labels, standard operating procedures and SDSs;
5. Requesting training on hazardous chemical substances with which they are unfamiliar or have concerns;
6. Using personal protective equipment (PPE) and clothing in accordance with prescribed training; and

Reporting the existence of health and safety hazards associated with the use of chemicals and chemical related injuries to his/her supervisor, the DS, or the NIH Occupational Safety and Health Committee (OSHC). Employees can anonymously report safety concerns too.
Responsibilities of the Division of Safety (DS)

Responsibilities of the Division of Safety

1. Monitoring federal regulations and updating the NIH HCP to reflect any changes;
2. Providing basic training in hazard communication for NIH employees;
3. Providing technical guidance and policy interpretation to personnel at all levels of responsibility on matters pertaining to the NIH HCP;
4. Providing assistance to supervisors and employees in the implementation of the NIH HCP; and
5. Primary contact with outside agencies for inspections, investigations for injuries and illnesses.

The DS employs specialists in industrial hygiene, chemical hygiene, and occupational health and safety to assist all NIH employees in developing effective safety programs for implementation at their worksite. An Occupational Safety and Health Specialist is assigned to each IC to provide support and assistance in addressing the safety and health concerns of NIH employees.

A copy of this document can be found on the DS website.

Responsibilities of the NIH Occupational Safety and Health Committee (OSHC)

The NIH Occupational Safety and Health Committee serves in an advisory role to the Director, NIH, to the directors of the ICs, and to the DS.

The committee is responsible for:

1. Annually review and monitor the status of the NIH HCP to evaluate program development, implementation, and resources; and
2. Making recommendations for program improvement.

THE NIH HCP COMPONENTS

All affected employees who may be exposed to hazardous chemicals at work under normal work conditions and foreseeable emergencies must be provided with safety information; and be trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes. "Exposure" or "exposed" under the OSHA Hazard Communication standard means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact, or absorption) and includes potential (e.g., accidental or possible) exposure.

The NIH Hazard Communication Program focuses on six essential components:

1. Learning the Standard/Identifying Responsible Staff
2. Preparing and Implementing a Written Hazard Communication Program
3. Ensuring Containers are Labeled
4. Maintaining Safety Data Sheets (SDS)
5. Informing and Training Employees
6. Reviewing and Evaluating Program

The purposes of each of these components, as well as the requirements for implementing them, are provided below.

Learning the Standard and Identifying Responsible Staff

Understand where/what provisions in the standard apply to employers using chemicals in their workplace(s) and to determine what is needed for compliance.

In addition, an effective program that addresses all the necessary components will have an assigned coordinator. This person may in turn identify staff members responsible for activities, such as training, inventory, etc.

Preparing and Implementing the Written HCP

The written plan will indicate how hazard communication will be addressed in the workplace. This includes identification and inventory of hazardous chemicals.

All supervisors must determine which chemicals may present a hazard to their employees based on the physical and chemical properties of the substance; potential health effects; and

how the substance is used. The supervisor shall create and maintain a hazardous chemical inventory including chemicals in active use and storage for their areas of responsibilities.

In identifying hazardous chemicals in the work area, attention should be given to:

1. The quantity of the chemical used;
2. The physical properties of the chemical (e.g., volatility, flammability, etc.);
3. The potency and toxicity of the chemical;
4. The manner in which the chemical will be used;
5. Conduct an activity hazard assessment for tasks using hazardous chemicals (see Appendix E);
6. The means available to control release of, or exposure to the chemical.

It is important that written standard operating procedures for each work area are periodically reviewed to ensure that appropriate safety precautions are included. These procedures should be periodically updated to reflect changes that may affect the chemical hazard assessment of ongoing work.

The chemical inventory serves as an index for SDSs that must be readily available at the worksite. Each worksite shall include a list by name of all hazardous chemicals used in the workplace by using the identity that is referenced on the SDS. This identity is often a common name, such as the product or trade name (i.e., Lime-A-Way).

SDSs should be consulted for important physical and health hazard data. The American Conference of Industrial Hygienists' (ACGIH) Threshold Limit Values (TLVs) and OSHA Permissible Exposure Limits (PELs) can also be referenced for health exposure information. The hazards of mixing chemicals must also be addressed. Supervisors may contact the Safety and Health Specialist assigned to their IC (301-496-2346) for assistance in performing a hazardous chemical assessment or to obtain copies of the OSHA Hazard Communication Standard or for additional copies of this document.

Ensuring Containers are Properly Labeled

Employees must be provided with information about the potential hazards of chemicals before beginning their initial assignment. This hazard information must be made available to employees at the worksite. Two informative resources are the label on the chemical container, and the SDS available from the manufacturer, distributor, or importer of the chemical.

Chemicals must be properly labeled in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). OSHA has issued a final rule to align its Hazard Communication Standard (29 CFR 1910.1200) with the GHS.

Labels on containers of hazardous chemicals serve to identify and provide immediate warning of the hazards associated with the chemical, and as a reminder that more detailed safety and health information is available elsewhere, particularly in an SDS. For these reasons, manufacturers, distributors, and importers are required to provide labels that

include both the chemical name and all appropriate hazard warnings.

Labels, signs, placards, and other forms of warnings provide visual reminders of specific hazards not only to employees working directly with the chemical, but also to others such as visitors, service representatives, housekeeping personnel, and emergency personnel who may encounter these chemicals. Users of hazardous chemicals must ensure that labels on purchased or supplied chemicals are not removed or defaced; unless the container is relabeled with the required information.

Alternative methods may be used; however, consult with the HCP DS Program Manager for validity and compliance.

Original and **secondary containers** must be properly labeled with the identity of the hazardous substance(s) contained. The chemical identity on the label must correspond to that used on the SDS. In lieu of the manufacturer's label, an in-house label that provides general hazard information may be used. Such in-house labels should contain the identity of the hazardous chemical(s) and appropriate hazard warnings: words, pictures, symbols, or combination thereof.

Each supervisor must ensure that all containers have EITHER the original manufacturer's label or supplemental label, which contains the following information:

- Product identifier;
- Signal word;
- Hazard statement(s);
- Pictogram(s);
- Precautionary statement(s); and
- Supplier information

Labels shall be:

- Legible;
- In English;
- Prominently displayed on the container.

Detailed information on labels and label requirements can be found here.

Exception to labeling requirement:

- Labels are not required on secondary containers if 2 conditions are met.
    - They are intended for immediate use – within the same shift.
    - They are used by the same person who performs the chemical transfer.

Examples of activities which do not require secondary container labels include but are not limited to measuring cups, transfer containers, mixing jugs, etc. All secondary containers intended for use after the immediate shift must be labeled with the name of the chemical, the concentration, hazard warnings, date transferred, and initials of the person who transferred it.

Maintaining Safety Data Sheets (SDS)

Safety Data Sheets (SDSs) identify the physical and chemical properties of hazardous chemicals (e.g., flash point, vapor pressure), their physical and health hazards (e.g., potential for fire, explosion, signs, and symptoms of exposure), and precautions for safe handling and use. Information in the SDS covering the physical and chemical properties of a chemical (e.g., volatility, flammability, reactivity), its toxic properties (e.g., carcinogen or reproductive hazard), and routes of exposure can be used to define what potential hazards the material presents to users.

A SDS shall be available for every hazardous substance used in a work area and shall be accessible to employees. All manufacturers, distributors, and/or suppliers of hazardous chemicals are required to provide an SDS with each chemical purchased. If shipments of chemicals are received without an SDS, the recipient should contact the manufacturer/supplier for a copy.

It is important to ensure that SDSs (or information contained therein) maintained at the worksite provide up-to-date, complete, and accurate information. Supervisors and employees may wish to consult with the DS or the National Library of Medicine (NLM) for access to additional chemical information databases (see Appendix B).

Each SDS shall include the following information in the referenced order:

1. Identification;
2. Hazard(s) identification;
3. Composition/information on ingredients;
4. First aid measures;
5. Fire-fighting measures;
6. Accidental release measures;
7. Handling and storage;
8. Exposure controls/personal protection;
9. Physical and chemical properties;
10. Stability and reactivity;
11. Toxicological information;
12. Ecological information;
13. Disposal considerations;
14. Transport information;
15. Regulatory information;
16. Other information, including date of preparation or last revision.

It is important for the supervisor to ensure that all incoming SDSs are reviewed for new and significant health and safety information. Hazard information must be shared with the affected employees. This may be done through delegation.

Informing and Training Employees

The Hazard Communication Standard requires that employers train employees on the hazardous chemicals in their work area(s) before their initial assignment and when new hazards are introduced into the area(s). All employees working with, or who may be potentially exposed to, hazardous chemicals must receive information and training that will enable them to work safely with those chemicals.

This training must be conducted in a manner and language that employees are able to comprehend. Employees must understand the following information:

1. They are exposed to hazardous chemicals.
2. Labels and safety data sheets can provide them with information on the hazards of a chemical.
3. These items can (and should) be consulted when needed.
4. They must have a general understanding of what information is provided on labels and SDSs, and how to access them.
5. The protective measures available in their workplace(s), how to implement them, and who to contact if an issue arises.

By receiving training in a timely manner, employees are better able to make informed judgments regarding the appropriate safeguards to use in minimizing their exposure to hazardous chemicals.

Employee training shall focus on the following:

1. A basic description of the OSHA Hazard Communication Standard, including the requirements for container labels, SDSs and training on hazardous substances. The training should emphasize the fact that the employees have the right to receive or have their personal physician receive information contained in SDSs;
2. Work operations where hazards are present;
3. The known physical and health hazards associated with the chemicals in their workplace;
4. Methods that can be used to detect the presence or release of the chemicals;
5. Available protective measures to minimize exposures including engineering controls, safe work practices, personal protective equipment, and emergency procedures; and

details of the NIH HCP including an explanation of the labeling system, SDSs and how to obtain and use them. This information must be provided for both routine, non-routine tasks, and foreseeable emergencies. On the job training and DS provided formal training records shall be maintained by the Supervisor for at least one year.

In addition to job-site specific training and mandatory Hazard Communication training provided to the employee, the DS offers a variety of safety training, industrial hygiene and surveillance programs, and information resources to promote employee health and safety. Information regarding the training opportunities offered by the DS can be obtained by contacting the IC Safety and Health Specialist (301-496-2346).

I. Hazardous Non-Routine Tasks

Supervisors shall inform employees of the hazards and safety procedures for non-routine tasks and operations involving substances contained in unlabeled pipes in their work area. Information will include the chemicals' specific hazards and appropriate protective/safety measures that the employee must take.

II. Informing Contractor and Contract Workers

Outside contractors working at NIH shall be provided by the NIH Project Officer information regarding hazards that they may encounter during their work at NIH. Potential workplace hazards and associated training requirements for outside contractors should be outlined in the contract language specific to each project and/or job site.

III. Contractor and Contract Workers informing NIH of hazardous chemicals being used.

Outside contractors working at NIH shall provide by the NIH Project Officer information regarding hazards that they may be bringing into the NIH work area. See the Contractor Safety Program for more details on how contractors provide NIH with safety programs. Contact DS for any questions.

Reviewing and Evaluating Program

Although the Hazard Communication Standard does not require evaluation and reassessment of the HCP, it must remain current and relevant. The best way to ensure this is for supervisors and employees to periodically review their HCP to ensure that it is still working and meeting its objectives; and to revise as appropriate to address new chemicals, hazards, or other changes to conditions in the workplace.

The NIH HCP will be reviewed and updated annually by the OSHC to determine effectiveness in preventing employee exposures to hazardous materials and to maintain compliance with regulatory requirements.

Compliance with the Occupational Safety and Health Administration HAZCOM 2024 Final Rule

To maintain compliance with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200), as amended by the **HAZCOM 2024 Final Rule**, the NIH Hazard Communication Program is updated to incorporate the revised requirements aligned with the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 7.

Some of the HAZCOM requirements, including chemical labeling, Safety Data Sheets (SDSs), and employee training—are incorporated into OSHA Laboratory Standard (29 CFR 1910.1450), which

governs the safe use of hazardous chemicals in laboratories.

Although the HAZCOM 2024 Final Rule primarily applies to chemical manufacturers, importers, and distributors, NIH laboratories and workplaces must implement the updated requirements for revised labels, Safety Data Sheets (SDSs) and training.

Principal Investigators (PIs) and supervisors are responsible for:

- Verifying that newly procured small containers of hazardous chemicals are received with OSHA-compliant labels and ensuring that hazardous chemicals used or stored within their work areas are maintained in containers that are labeled in accordance with OSHA Hazard Communication requirements.
- Ensuring that outdated SDSs are replaced with revised 2024 HAZCOM compliant versions and are readily accessible to employees during each work shift.
- Ensuring that employees who work with or may be exposed to hazardous chemicals receive the required Hazard Communication update training.

The Division of Safety is responsible for:

- Updating the NIH Hazard Communication Program, guidance documents, and mandatory Hazard Communication update training, as appropriate, to reflect the requirements of the 2024 HAZCOM Final Rule.
- Providing guidance to NIH Institutes and Centers on implementation of the revised hazard classification, labeling, and Safety Data Sheet requirements.

GUIDANCE IN IMPLEMENTING THE NIH HCP

A summary of the key requirements for implementing the NIH HCP is provided in checklist form below. More detailed information on each of these requirements is provided on the pages referenced in parentheses. Additional guidance for implementing the program requirements can be obtained by consulting the answers to the questions found on pages 11-15.
Supervisors are encouraged to collaborate with the DS staff to implement the plan at their specific worksites.

Checklist for Implementing the NIH HCP

- ϒ Identify hazardous chemicals by work area
- ϒ Obtain and maintain SDSs of hazardous chemicals from manufacturers/distributors
- ϒ Develop a chemical inventory
- ϒ Devise a method to ensure that SDSs (or information contained therein) are accessible to employees
- ϒ Ensure that labels are legible and list the chemical name and necessary hazard warning information

- Inform employees of NIH HCP
- Inform employees of job-site specific chemical hazards and available protective measures for reducing potential exposure
- Provide new information on chemical hazards as it becomes available
- Inform employees of hazards related to non-routine tasks
- Identify methods to inform other employees, of a multi-employer worksite, of hazards

ANSWERS TO QUESTIONS ON PROGRAM IMPLEMENTATION

1. **What is a hazardous chemical?**

OSHA's Hazard Communication Standard (29 CFR 1910.1200) broadly defines a hazardous chemical as any chemical whose presence or use is a physical hazard or a health hazard.

Chemicals that are considered "physical hazards" include:

- combustible liquids, compressed gases, explosives, flammables, organic peroxides, oxidizers, pyrophorics, and unstable or water-reactive chemicals.

Chemicals that are considered "health hazards" include:

- hepatotoxins, nephrotoxins, carcinogens, teratogens etc.

Supervisors and employees may wish to consult the OSHA Hazard Communication Standard for more detailed definitions of both physical and health hazards. Additional information can be obtained by attending DS training programs; or calling the Safety and Health Specialist assigned to your IC at (301) 496-2346.

The NIH HCP uses OSHA's broad definitions to refer to the hazardous properties which may be associated with chemicals. However, to determine whether certain chemicals pose physical or health risks to employees, and require inclusion in the NIH HCP, specific attention should be given to the exposure potential of chemicals present in the work area. Exposure potential is dependent on the following:

1. The quantity of the chemical used;
2. The manner in which the chemical is used; and
3. The means available to control release of or exposure to the chemical.

Additional factors that may influence the effects of chemicals on the health of employees are the potency or toxicity of the chemicals and any characteristics of the person using the chemical that may place them at increased risk (e.g., medical conditions, sensitivity to the chemical).

2. **How can I get a copy of OSHA's Hazard Communication Standard?**

A copy of the standard is available by contacting your IC Safety and Health Specialist at (301) 496-2346 or downloaded here.

3. **What sources of information are available for compiling a list of hazardous chemicals?**

As an aid in determining substances which are considered to be hazardous, supervisors should consult OSHA's Hazard Communication Standard for detailed explanations and definitions of categories of hazardous chemicals. The manufacturer's SDSs can be used to identify important physical and health hazard data. Information on developing and maintaining chemical listings and performing chemical hazard assessments can be obtained by contacting the IC Safety and Health Specialists in the DS (301) 496-2346.

4. **Why can't I simply rely on the manufacturer's/ supplier's SDS to determine whether a chemical is hazardous?**

While the chemical and physical properties of the material (e.g., its volatility, flammability, reactivity), as well as its toxic properties (e.g., carcinogen or reproductive hazard), can be used to define the hazard potential the material presents to employees, the risk of experiencing harmful health effects varies with the degree of exposure in a given work operation. Therefore, determination of what constitutes a hazardous chemical need to be made by the supervisor for his/her work area. Factors influencing the degree of exposure include the quantity of chemicals, the manner in which it is used, and the means available to control the release of, or exposure to the chemicals.

5. **What information must be maintained and made accessible to employees at the worksite?**

A current inventory list of chemicals identified as potentially hazardous, SDSs (or information contained within) for those chemicals, and labels that identify the chemical and list the critical hazard information must be maintained and made available at the worksite.

NIH chemical users should factor in their own working requirements and conditions of use when selecting appropriate work practices, personal protective equipment, and engineering controls.

The chemical inventory should consist of all chemicals that are produced, imported, or used. The chemical inventory should be complete and contain, at a minimum, the following:

- chemical name;
- CAS Number;
- common name;
- synonyms;
- product/mixture name (if applicable);
- percentage of ingredients in product/mixture (if applicable).

It is recommended that this chemical inventory be computerized for future sorting, additions, deletions, and status reports.

6. **What if I find that the manufacturer's/suppliers SDS provides incomplete information or is missing critical information?**

The NLM has several databases that can be used to access additional information (see appendix B). If you need information, contact your IC Safety and Health Specialist at (301) 496-2346.

7. **What if the manufacturer's/supplier's SDS does not include the names or identity of the chemical component(s)?**

Information relating to the chemical identity, or name of a hazardous chemical, may be withheld by the chemical manufacturer, importer, or employer if it is deemed to be a trade secret. However, information about its harmful properties cannot be withheld and must be included in the SDS. Also, the chemical identity must be made available to health professionals, and certain designated individuals so they can render medical treatment, to bring about protective measures in an emergency or, when requested in non-emergency situations, to protect employees who may be potentially exposed.

For such disclosures, a written statement of confidentiality may be required prior to release of the chemical identity or, in an emergency, as soon as circumstances permit.

8. **If an employee works with several hazardous chemicals in a process, is it necessary to maintain an SDS for each hazardous chemical present?**

Yes, employees must have access to information related to potentially hazardous chemicals identified in each work area. This information may be the manufacturer's SDS or some other source that contains pertinent health and safety information. The supervisor may also choose to develop safe operating procedures for processes that cover groups of hazardous chemicals designed to identify and control the collective hazards associated with these chemicals.

9. **Do I have to re-label all incoming containers of hazardous chemicals?**

Manufacturers and suppliers of hazardous chemicals are required to label their containers with the identity of the chemical and the appropriate hazard warnings. Therefore, in most cases, incoming containers will not have to be relabeled. If majority of the employees in a work area speak a language other than English, supervisors may add the necessary information in that language as long as the information is presented in English as well.

10. **Do I need to label transfer containers?**

When transferring hazardous chemicals from one labeled container to another, the portable or transfer container does not have to be labeled if only one person handles the container, and the container is filled and emptied by that person during the workday. In situations where other people may be exposed to the chemicals present in the portable or transfer container, it is always prudent to label the container to inform those who are potentially exposed about the hazards associated with the chemical and the necessary precautions to minimize their exposure.

11. In addition to labels, what other forms of warning should be used to identify the presence of hazardous chemicals?

In some cases, warning signs on doors should be used to alert people not to enter the work area unless they are aware of the necessary safeguards. Door signs should also provide the name and telephone number of the person(s) to contact in case of emergency. This information is especially important for visitors or employees not assigned to that area.

12. If SDSs and labels are maintained at the worksite, why is it necessary to train employees?

SDSs and labels have limited value unless the employees understand how to use the information and are aware of actions to be taken to avoid or minimize hazardous exposures and thus the occurrence of adverse health effects. Training provides this opportunity and allows supervisors to assess their employees' level of understanding of the material and their use of written operating procedures.

13. What additional training programs covering chemical safety are available?

The DS offers a program entitled Laboratory Safety. Contact your IC Safety and Health Specialist for course information. Additional training in Hazard Communication for supervisors, support, and administrative personnel is provided by the DS on an as needed basis.

14. What if I believe that I have not been provided with the required hazard information?

All NIH employees have the right to discuss their safety and health concerns with their supervisor or the DS, and the Occupational Safety and Health Committee without fear of reprisal for expressing their concerns.

15. Are contract employees covered under the NIH HCP?

Employees working under contract at the NIH are subject to their own employer's Hazard Communication Program, to the extent that hazardous chemicals are being supplied and used by the contractor. Contract employees potentially exposed to chemicals present at the NIH facility can obtain NIH HCP information from the NIH Contracting Officer's Representative for the contract. NIH contractors must submit a listing of hazardous chemicals that they bring into NIH facilities; and provide corresponding SDSs to the NIH Contracting Officer's Representative for the contract.

16. Who can I contact if I have questions on implementing any of the requirements of the NIH HCP?

A toxicologist within the DS provides technical guidance on matters pertaining specifically to the NIH HCP. In addition, the DS has assigned Safety and Health Specialists to each IC to assist NIH employees with safety and health concerns. Contact your IC Safety and Health Specialist at (301) 496-2346 to obtain the necessary assistance.

APPENDIX A
General References

American Conference of Governmental Industrial Hygienists (Issued annually). Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. 2012. Cincinnati, Ohio.

Bretherick, L. Handbook of Reactive Chemical Hazards. 3rd ed. 1985. Butterworths, Boston.

Hazard Communication, 29 CFR 1910.1200 (1994).

Hazard Communication, Appendix C, 29 CFR1910.1200, Allocation of Label Elements (Mandatory).

Hazard Communication Standard Final Rule, 29 CFR 1910.1200 (2012).
https://www.osha.gov/dsg/hazcom/ghs-final-rule.html

Lewis, Richard. Sax's Dangerous Properties of Industrial Materials. 5 Volume Set. 12th Edition. Van Nostrand Reinhold Company, New York.

The Merck Index. An Encyclopedia of Chemicals and Drugs. 11th ed. 1989. Merck and Company, Inc., Rahway, New Jersey.

National Institutes of Health (NIH). NIH Occupational Safety and Health Management. 2/27/2006. NIH Manual Issuance No. 1340.

NIOSH Pocket Guide to Chemical Hazards. June 2010 (or subsequent editions). National Institutes for Occupational Safety and Health (NIOSH), Cincinnati, Ohio, Government Printing Office (GPO), Washington, D.C., GPO Stock No. 017-033-00500-1. http://www.cdc.gov/niosh/npg/default.html

Prudent Practices in the Laboratory: Handling and Disposal of Chemicals. Washington, DC: National Academies Press, 1995. (available online with free access)

Registry of Toxic Effects of Chemical Substances. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, revised annually, U.S. Government Printing Office, Washington, DC.

Rose, V. E., & Cohrssen, B. (Eds.). (2011). Patty's Industrial Hygiene, 4-Volume Set. Wiley. com.

Safety in Academic Chemistry Laboratories. Washington, DC: American Chemical Society, 2017.
http://www.acs.org/content/dam/acsorg/about/governance/committees/chemicalsafety/publications/safety-in-academic-chemistry-laboratories-students.pdf

APPENDIX B
National Library of Medicine (NLM) Databases for Chemical Hazard Information

1. Toxicology Literature Online (TOXLINE)

https://www.nlm.nih.gov/databases/download/toxlinesubset.html

TOXLINE was the National Library of Medicine (NLM) bibliographic database for toxicology, a varied science encompassing many disciplines. TOXLINE records provide bibliographic information covering the biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals. TOXLINE references were drawn from various sources organized into component subfiles.

TOXLINE records not provided by PubMed are no longer updated.

This version of TOXLINE is no longer updated. Updated TOXLINE content is available in PubMed or by searching PubMed using the search string: tox [sb] .

2. Toxicology Data Network (TOXNET)

TOXNET is a computerized system of toxicologically oriented factual data banks managed by the NLM. Many NIH facilities with NLM accounts may access this database directly, those facilities which do not have access to the NLM can request assistance from the NLM.

As part of a broader NLM reorganization, most of NLM's toxicology information services have been integrated into other NLM products and services. A directory of the integration can be found at this link: https://www.nlm.nih.gov/toxnet/index.html

3. Medlars Online (MEDLINE)

The MEDLINE is the NLM file of bibliographic citations from approximately 3,400 medical and biomedical journals. https://www.nlm.nih.gov/bsd/pmresources.html

APPENDIX C
NIH HCP Resources

Use this space for your personal record of resources that are available in implementing the NIH HCP.

APPENDIX D
Glossary of Terms

Acute effect: An adverse effect on a human or animal which has severe symptoms developing rapidly and coming quickly to a crisis.

Carcinogen: A substance or agent capable of causing or producing cancer in mammals, including humans. A chemical is considered to be a carcinogen if it is listed by either the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or by the Occupational Safety and Health Administration (OSHA).

Chronic effect: An adverse effect on a human or animal body, with symptoms which develop slowly over a long period of time, or which recur frequently.

Classification: To identify the relevant data regarding the hazards of a chemical; review those data to ascertain hazards associated with the chemical; and decide whether the chemical will be classified as hazardous, and the degree of hazard where appropriate, by comparing the data with the criteria for health and physics hazards.

Container: Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, tank truck or the like that contains a hazardous substance. For purposes of this section, pipes or piping systems are not considered to be containers.

Combustible liquid: Any liquid having a flashpoint at or above 100° F (38° C), but below 200° F (93°C).

Corrosive: A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.

Engineering control: A mechanical or design feature intended to remove or isolate potentially harmful substances in the workplace. Common engineering controls include local exhaust ventilation systems such as hoods and physical barriers to contain potential hazards.

Exposure potential: Factors that influence the effects of chemicals on the health of employees

Flammable: A solid, gas, liquid or aerosol that will ignite and burn according to specific tests and definitions. A flammable liquid is defined as any liquid having a flashpoint below 100° F (38° C).

Flashpoint: The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite and burn according to specific tests and definitions.

Hazard category: The division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard class: The nature of physical or health hazards, e.g., flammable solid, carcinogen, oral

acute toxicity.

Hazardous chemical: 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. The term "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 mucus membranes.

Hazard classification: An evaluation of chemicals to determine the hazard classes, and where appropriate, the category of each class that applies to the chemical being classified.

Hazard statement: A statement assigned to a hazard class and category that describes the nature of the hazards of a hazardous product, including, where appropriate, the degree of hazard.

Hazard warning: Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which conveys the health hazards and physical hazards of the substance(s) in the container(s).

Health hazard: A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to §1910.1200 -- Health Hazard Criteria.

Immediate use: The hazardous substance will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Irritant: A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

NIH Employees: All personnel at NIH covered under the scope of this plan, including Federal employees, research associates (local/foreign), temporary interns, and contractors engaged in work that involves the handling of chemicals at NIH facilities.

Non-Routine task: A specific task or activity that is not part of the employee's assigned duties. A non-routine task includes work in which the employee may not have specific training or requisite experience to do the work safely.

Personal Protective Equipment: Devices worn by the worker to protect against potential hazards. Typical examples include chemically resistant gloves, eye and face protection, hard hats, impermeable aprons, etc.

Physical hazards: A chemical for which there is statistically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, corrosive, pyrophoric, unstable (reactive) or water reactive.

Pictogram: A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical.

Precautionary statement: A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product, or improper storage or handling of a hazardous product.

Signal word: A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The words 'Danger' and 'Warning' are used as signal words.

Vapor pressure: The pressure exerted by saturated vapor above its own liquid in a closed container. These values are usually expressed in millimeters of mercury (mmHg). The higher the vapor pressure, the more easily it will enter the atmosphere when left exposed.

Water reactive: A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task:	**overall Risk Assessment Code (RAC) (Use highest code)**
Project Location:	**Risk Assessment Code (RAC) Matrix**
Contract Number:	
Date Prepared:	
Prepared By (Name/Title):	
Reviewed By (Name/Title):	
Notes: (Field Notes, Review Comments, etc.)	

Severity	Frequent	Likely	Occasional	Probability Seldom	Unlikely
	E	E	H	H	M
Catastrophic	E	H	H	M	L
Critical	H	M	M	L	L
Marginal	M	L	L	L	L
Negligible					

RAC Chart

- E = Extremely High Risk
- H = High Risk
- M = Moderate Risk
- L = Low Risk

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each **"Hazard"** on AHA.

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Annotate the over all highest RAC at the top of AHA

Job Steps	Hazards	Controls	RAC

National Institutes of Health

ACTIVITY HAZARD ANALYSIS (AHA)

Equipment to be Used:	Training Requirements/Competent or Qualified Personnel Name(s):	Inspection Requirements:
Hazards Checklist		
• Can someone be struck or contacted by anything?	• Can someone slip, trip, or fall?	• Can someone fall into anything?
• Can someone strike against or contact any physical hazards?	• Can someone strain or overexert?	• Can damage to equipment occur?
• Can someone be exposed to any hazardous conditions?	• Can someone be caught in anything?	• Can someone injure someone else?
Approvals (Sign/Date):	**Approvals (Sign/Date):**	**Approvals (Sign/Date):**
Approvals (Sign/Date):	**Approvals (Sign/Date)**	**Approvals (Sign/Date):**