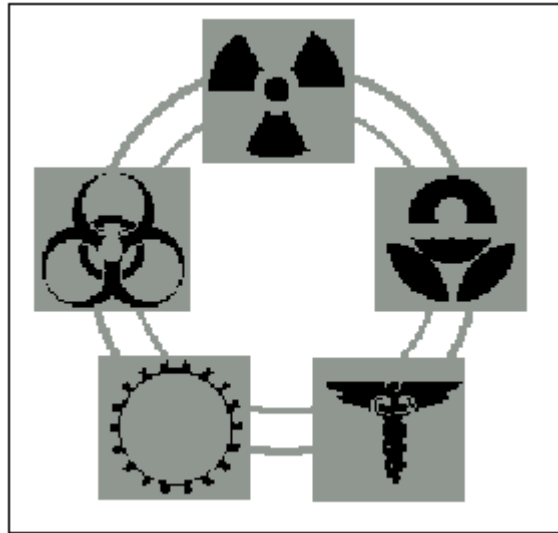


Hazard Communication at Purdue University



Radiological and Environmental Management

Written Compliance Manual

**IOSHA Right-to-Know Law
29 CFR 1910.1200**

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1.0 **PURPOSE**

This document establishes the procedures, objectives, and administrative requirements for Purdue University's Hazard Communication Program. This document is intended to ensure compliance with Federal and State regulatory requirements. Applicable regulations are the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) or Right-To-Know Law (RTK), 29 CFR 1910.1200, and the Environmental Protection Agency (EPA) Community Right-To-Know Standard (SARA), 40 CFR Part 370. This document was prepared by the Department of Radiological and Environmental Management (REM). Additional copies are available from REM, 1662 CIVL, Room B173.

2.0 **APPLICABILITY**

This document applies to employees who work with or supervise operations involving work with hazardous chemicals at the West Lafayette Campus, regional campuses, University Farms, and related facilities and operations. An employee of Purdue University is any person who receives a paycheck containing the Purdue Griffin or Seal watermark.

This program also applies to laboratories as follows:

- ◆ Container labels must be maintained.
- ◆ MSDSs received must be maintained and readily accessible during each work shift to laboratory employees when in their work area.
- ◆ Information and training must be provided to laboratory employees.
- ◆ Laboratories that ship hazardous chemicals are considered manufacturers and/or distributors and must ensure containers are labeled in accordance with the standard and must supply MSDSs to the down line user or receiver of the hazardous chemical.
- ◆ In addition, laboratory personnel must comply with the requirements of the "Occupational Exposures To Hazardous Chemical In Laboratories Standard" (29 CFR 1910.1450) and Purdue University's Chemical Hygiene Plan. Hazardous chemicals are chemicals which pose a physical and/or health hazard during routine or non-routine operations or during emergency conditions at any phase of the chemicals' "life-cycle" including receipt, issue, use, storage, or disposal.

3.0 **BACKGROUND**

Why the standard was promulgated:

Employees have the right to know the hazards of the chemicals and products they work with. The Hazard Communication Standard (29 CFR 1910.1200) was initially promulgated to protect employees handling chemicals during chemical manufacturing or as a chemical user in the manufacturing sector (SIC Codes 20-39). The standard was expanded to cover the non-manufacturing sector including universities.

The state of Indiana, under the authority of Indiana Occupational Safety and Health Administration (IOSHA), 402 West Washington Street, Room W-195, Indianapolis, Indiana 46204, has adopted the Federal Hazard Communication Standard.

What is the purpose of a written Hazard Communication Program (HCP)?

The standard requires employers to develop and implement a written hazard communication program for their workplaces. The document provides information to employees about their rights under the law and details how the program is administered at their workplace. It specifies the methods for providing employee training so they, 1) recognize and understand the hazards of the chemicals they work with, and 2) recognize and understand the labeling system for chemicals and products they use.

Hazard Determination

In determining chemicals covered by provisions of the standard, Purdue University will rely on material safety data information provided by chemical manufacturers, importers, and distributors. Principally, only products for which accurate and complete material safety data sheets (MSDSs) are available will be purchased for use at Purdue University. All chemicals and chemical products are included in this program at Purdue University.

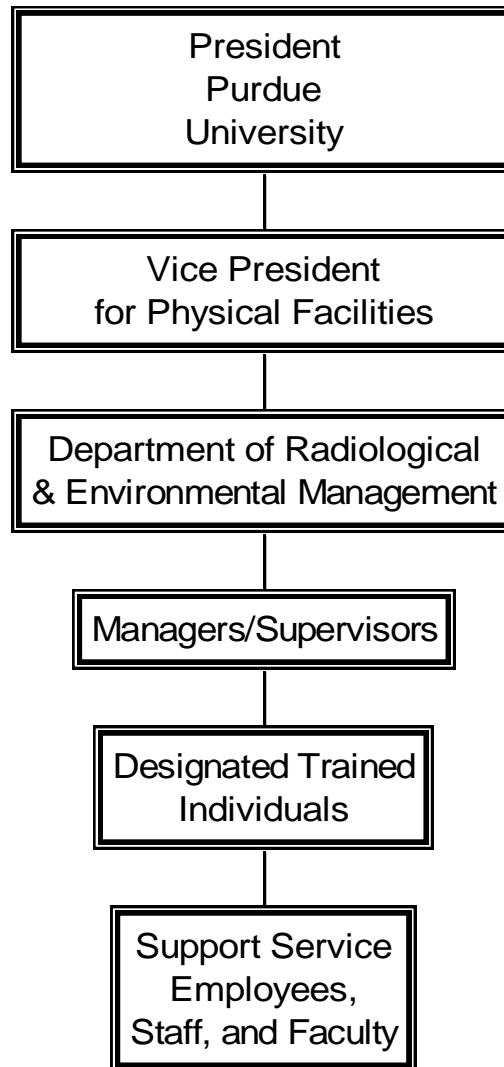
4.0 GENERAL UNIVERSITY POLICY AND ADMINISTRATIVE STRUCTURE

- ◆ It is the policy of Purdue University to take every reasonable precaution to provide a work environment free from recognized hazards for its employees in accordance with the General Duty Clause of the OSHA Act (Public Law 91-596 Section 5 (a)(1)). The University's policy document is Environmental Health and Safety Compliance (I.2.4).
- ◆ It is the policy of Purdue University, as required by the OSHA Hazard Communication Standard, to ensure that chemical hazards are identified within each work area and that chemical hazard information is made available to all employees.
- ◆ For Community Right-to-Know Compliance, see section 11.0 of this document.
- ◆ For Contractor Right-to-Know Compliance, see section 12.0 of this document.

Administrative Structure for the Program at Purdue

The administrative structure of responsibility for the Indiana OSHA Hazard Communication Standard at Purdue University is as follows:

Organizational Flow Chart for Implementation of Worker Right-to-Know at Purdue



5.0 **EMPLOYER RESPONSIBILITIES**

General Responsibilities

The President is responsible for assuring Purdue University is in compliance with applicable Federal and State Occupational Safety and Health regulations. The President has designated the Vice President for Physical Facilities as the OSHA compliance officer. Under him, the Department of Radiological and Environmental Management (REM) has been delegated the responsibility for the development, implementation, and oversight of the Hazard Communication Program. Deans, Directors, and Department Heads are responsible for implementing and maintaining the Hazard Communication Program in their work areas. In most cases, this involves designating one or more individuals to coordinate the hazard communication program and empowering the designee(s) to do what is necessary to maintain compliance. Employees are responsible for learning about the hazardous chemicals in their work areas, for attending training courses, for understanding hazard information on the products they use, and for using safe work practices.

Specific Responsibilities

Radiological and Environmental Management will:

- ◆ Develop and provide overall administrative support for the Hazard Communication Program (HCP) including interpretation of the regulation.
- ◆ Provide training for managers, supervisors and/or designated individuals concerning their responsibilities and the requirements of the program.
- ◆ Provide guidance for the preparation of procedures, survey reports, chemical inventories, and training programs required by the HCP.
- ◆ Validate employee training.
- ◆ Conduct periodic audits of work area compliance activities.
- ◆ Maintain a master file of documentation and records associated with the HCP, including but not limited to:
 - 1) Training records
 - 2) Employee exposure information
 - 3) Chemical Inventories
 - 4) MSDSs
- ◆ Assist with MSDS requests.

Managers/Supervisors will:

- ◆ Understand their responsibilities pursuant to the Environmental Health and Safety Compliance Policy (1.2.4). They must designate their representative(s) who will be a Designated Trained Individual (DTI) for the work area.

- ◆ Managers and Supervisors shall be responsible for effectively communicating to their designee(s) and the other employees in the work area that the designated individual is empowered, as necessary, to meet the requirements of the University's HAZCOM program for their work area.
- ◆ Ensure that a work area specific Hazard Communication Program is established and that employees receive necessary training. The program must be written, applicable to work area chemical process, and at least as stringent as the requirements of this document. REM must approve the plan prior to implementation. A written work area program has been developed and is included as Appendix P. **A completed copy of this program must be posted in the work area and a copy must be kept with the University's Written Compliance Program in.**
- ◆ Ensure that employees are provided effective information and training on hazardous chemicals in their work area at the time of initial assignment, whenever a new physical or health hazard the employees have not previously been trained is introduced into their work area, and that annual refresher training is conducted.
- ◆ Seek guidance from REM concerning compliance with or interpretation of the Hazard Communication Standard and refer employee questions to REM.
- ◆ Ensure an inventory is completed for all chemicals used in the work area (as defined in Appendix C) using form HCP-4, Chemical Inventory Form (Appendix J). Ensure the names of persons exposed to each chemical are recorded on form HCP-5. Ensure copies of forms HCP-4 and HCP-5 are submitted to REM. Ensure that the inventory is updated annually (fiscal basis).
- ◆ Review and understand MSDSs for chemicals used by employees under their supervision and inform employees of new or updated MSDSs received.
- ◆ Ensure MSDS files are maintained in the work area and are readily accessible to employees.
- ◆ Ensure that employee requests for MSDSs and other materials are promptly handled.
- ◆ Ensure that **all** containers of hazardous chemicals are labeled with the chemical and/or trade names, or the chemical abstract numbers (CAS). Code letters or numbers and/or chemical formulas are generally not acceptable forms of labeling.
- ◆ Ensure that safe and healthful work conditions are maintained. To this end, departments and supervisors shall ensure that employees' exposure to hazardous chemicals, as defined by this program, do not exceed the permissible exposure limit (PEL) specified in 29 CFR 1910.1000 subpart Z or the Threshold Limit Value (TLV) as published by the American Conference of Governmental Industrial Hygienists, whichever is lower.

The Designated Individual:

The University uses a train the trainer approach to achieve HazCom compliance. Individuals designated from the work areas shall be known as designated trained individuals or DTIs.

The DTI will:

Assume the responsibilities outlined under the managers/supervisors and will also include the following additional responsibilities:

- ◆ Act as the work area RTK coordinator.
- ◆ Conduct effective hazard communication training sessions for the employees in your area(s) of responsibilities.
- ◆ Ensure training provided is documented using form HCP-8, Employee Right-to-Know Training Attendance Record, and a copy of this form is submitted to REM.
- ◆ Generate documentation as required.
- ◆ Provide contractor employees with chemical hazard information for the areas within your DTI responsibilities.

6.0 EMPLOYEE RIGHTS AND RESPONSIBILITIES

Employees have the right to:

- ◆ Be informed about the known health hazards and toxic properties of the chemical substances in their work environment, to have MSDSs readily accessible in the work area during each shift, and to be properly trained to work safely with these substances.
- ◆ File a complaint with IOSHA if they feel they are being exposed to unsafe or unhealthy work conditions.
- ◆ Not to be discharged, suspended, or otherwise discriminated against by their employer because of their filing a complaint or otherwise exercising their rights under the law.

Employees have the responsibility to:

- ◆ Attend the training programs on the Hazard Communication Standard.
- ◆ Use safe work practices and to use protective clothing and equipment provided and required for the job task.
- ◆ Inform their supervisor or DTI of accidents, conditions, or work practices they believe to be a hazard to their health or to the health of other individuals.
- ◆ Stay informed about the chemicals used on the job.

7.0 PROCEDURE FOR PROGRAM IMPLEMENTATION AND MAINTENANCE

Manager, Supervisor, DTI Training

To begin the process of program implementation, it is necessary to provide initial training to managers, supervisors, and/or DTIs. This training is provided by REM and covers the Hazard Communication Standard, the program developed for implementation of the standard at Purdue University, and the responsibilities of the managers, supervisors, and DTIs. An example training outline for Managers, Supervisors, and DTIs is included as Appendix N.

REM will maintain documentation of Hazard Communication training provided to managers, supervisors and DTIs using form HCP-7, Manager/Supervisor/DTI Certification Form (Appendix L).

Chemical Inventory and Employee Exposure Information

A list of chemicals, henceforth known as the **Chemical Inventory or form HCP-4**, (Appendix J: Procedures for Completing HCP-4 and HCP-5), used in the work area(s) must be completed annually (fiscal year basis). The chemical inventory must include the following:

- ◆ Chemical or product name and product or catalog number.
- ◆ Manufacturer name, city and state address, and phone number for the manufacturer.
- ◆ Operation of process that the product is used in.
- ◆ Do you have an MSDS for the product already in your files?

The procedures for completing a chemical inventory for the HazCom Program are fully outlined in Appendix J of Purdue University's Written Compliance Manual. An example is provided to facilitate completing your work area inventory.

A copy of the work area's current Chemical Inventory **must** be included in the work area's Written Compliance Manual. The current inventory should be inserted as Appendix H. Previous years' inventories should be maintained in the work area or a designated departmental location. A copy of the Chemical Inventory must also be submitted to REM each fiscal year. REM will keep a master set of chemical inventories.

The hazard communication standard requires that employees be identified who work in the area and the chemicals to which they may be exposed. Purdue program documents this information on the **Employee Exposure Information, form HCP-5**. A copy of this form and instructions for completing the form are located in Appendix J. A form HCP-5 should be completed for each Chemical Inventory, form HCP-4, and should be attached to the inventory form and included in Appendix H for the current fiscal year. Previous form HCP-5's should be maintained in the work area or other designated departmental location.

General Training

All affected employees must be informed that Purdue University has a Hazard Communication Program. Employees must be provided with effective information and training on hazardous chemicals in their work area at the time of initial assignment, and whenever a new physical or health hazard is introduced into their work area. *Training must also be conducted when an employee transfers work areas.* Training is required for full-time, part-time, temporary, and student employees in your work areas.

Hazard communication **re-fresher training must be conducted annually**, also on a fiscal year basis. Re-training is needed to maintain an effective work area hazard communication program. Re-training must also include the general information and the job specific information.

Job Specific Training and Education

Employees who work with, or may be exposed to hazardous chemicals while performing routine and non-routine hazard job duties must be informed of the possible hazards. It is acceptable to put the chemicals into categories (e.g. hepatotoxins, neurotoxins, nephrotoxins, etc.) for instructional purposes if it is more convenient. Instructions may be general to the hazard categories or specific to each chemical. The hazard information given to employees must be sufficient to provide them protection when followed.

Employee training sessions **must** include the following:

- ◆ Describe operations in the employee's work area where hazardous chemicals are present.
- ◆ Describe the potential hazards associated with non-routine tasks before the employees go to work on the task.
- ◆ Indicate the location and availability of the University's Written Hazard Communication Program including the list(s) of hazardous chemicals (Chemical Inventory) and the Written Right-to-Know Program for their specific work area (Appendix P).
- ◆ Explain what an MSDS is, how to read an MSDS (i.e., what each section contains and where to look for specific information), where MSDSs are kept in each work area, and how to obtain MSDSs.
- ◆ Explain how to relate information on MSDSs to the information on container labels (e.g. CAS numbers, physical properties, and health hazards).
- ◆ Encourage employees to familiarize themselves with the chemicals they use and to update themselves as new or revised product sheets arrive. This should be done before an employee works with a chemical to ensure maximum understanding and employee protection.
- ◆ Explain the secondary labeling system used at Purdue University. All containers of hazardous chemicals must be labeled with the product name and/or chemical name(s) and hazard warnings. The National Fire Protection Association Rating System is described in Appendix I of this document.

- ◆ Explain methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area or at the work site (such as monitoring conducted by the employer, continuous monitoring devices, visual appearances or odor of hazardous chemicals when being released, etc.). Include physical symptoms and other potential risks resulting from exposure to the chemicals in the work area.
- ◆ Explain personal protective equipment requirements (PPE), why PPE is important, and the MSDS section detailing the PPE for each chemical.
- ◆ Explain safe handling procedures for the chemicals the employees will be exposed to and where this information is referenced on the MSDS.
- ◆ Explain to employees what to do in case of:
 - 1) Mechanical accidents (i.e. equipment failure)
 - 2) Spill/leaks
 - 3) Ingestion/inhalation/injection/absorption (This should include the emergency treatment on the MSDS.)
 - 4) Emergency procedures to follow at Purdue University
- ◆ Explain any caution signs or other warning signs used in the work area.

Training sessions may include videotapes, slide presentations, visual demonstrations, or other appropriate teaching techniques selected by the DTI. The hazards associated with the chemicals in each work area must be effectively communicated to employees. The program must provide effective worker protection.

Training Documentation

Documenting that employees have received training is critical to an effective hazard communication program. Therefore, employees will be asked to sign the employee attendance form HCP-8 (Appendix L) at the end of the training session. A copy of this form must be maintained by the DTI and/or designated department location and a copy must be submitted to REM.

Written Work Area Hazard Communication (Right-To-Know) Program

A **written work area** Right-To-Know Program must be completed, in addition to the University's Written Compliance Manual. A sample document is available from REM and included as Appendix P. If a written program is adopted by a work area that is different than the sample document, it must be approved by REM.

A completed copy of the Written Work Area Right-To-Know Program must be posted in work area. The large, Right-To-Know posters must also be completed and posted in the work area. Employees must be informed about the location of these postings and where the University's Written Compliance Manual is located in their work area. A completed copy of the Written Work Area Right-To-Know Program must also be included in Appendix H of the University's Written Compliance Manual.

8.0 MATERIAL SAFETY DATA SHEETS (MSDS)

Manufacturers and/or distributors of chemical products must prepare Material Safety Data Sheets in accordance with Appendices A and B of the OSHA Hazard Communication Standard. The MSDS must contain the hazard evaluation information for that product. Appendices A and B should be consulted for assistance in interpreting MSDS information and in evaluating the quality of information provided by a given manufacturer. Purdue University will rely on the chemical manufacturers, importers, and/or distributors to provide an accurate, complete, and current MSDS for all chemicals and/or chemical mixtures.

An MSDS must be obtained for all hazardous chemicals used in a work area. In addition, when considering a new chemical, a complete and current MSDS should be forwarded to REM. New products should be evaluated prior to purchase and general use.

- ◆ REM will maintain an MSDS master file.
- ◆ MSDSs must be made available and accessible during **all** work shifts. The maintenance of a file specific to the work area is required. MSDSs may be organized by groups of hazardous chemicals where it is more appropriate to address the hazards of a process rather than the hazards of the individual chemicals. If such a grouping approach is used, an MSDS must be included for each hazardous chemical. In all cases, the MSDSs must be complete and readily accessible to all employees during each work shift.
- ◆ MSDSs should be as current as possible. The general interpretation of current is two or three years old. However, companies may not update their MSDSs this often and a five year old MSDS may be the most current available. **DO NOT** throw away an MSDS unless you have a new replacement copy. If the information has changed on the MSDS, the old MSDS must be archived and kept on file for 30 years. MSDSs for products no longer used must also be kept for 30 years past the last use date.
- ◆ Employees must be made aware of the location of the MSDS file in their work area. A copy of each new or updated MSDS should be posted or, in some other manner, be made available for review by the employees prior to being placed in the file.
- ◆ In the event an MSDS is not available for a particular chemical, an MSDS may be requested from the REM master file. The request must be submitted on form HCP-1, Request Form for Material Safety Data Sheets (Appendix D). Other resources for MSDSs are the World Wide Web and the companies' products are purchased from.
- ◆ DTIs must ensure that employee requests for MSDSs and other materials are promptly handled. If the requested information is not available, he/she is responsible for requesting the information. The employee must be notified of this action at the time the request is made.
- ◆ In the event that a requested MSDS can not be located in the master file, REM will request an MSDS from the manufacturer, importer, and/or chemical distributor. A sample form letter is included as Appendix E of this document. When received, a copy of the MSDS will be forwarded to the person requesting it.

- ◆ REM will keep a record of all MSDS requests. The record will include the date the “MSDS Request Form” was received and the date copies of the requested MSDS were sent.
- ◆ If an MSDS is not received from the manufacturer within 30 days of request, a follow-up request will be conducted. If the MSDS is not received within 10 days of the follow-up, the assistance of the Indiana Occupational Safety and Health Administration (IOSHA) may be requested.
- ◆ Employees who conduct their work in areas other than their primary work location must have ready accessibility to the MSDSs for the materials used at the job site. Examples of ways to provide ready accessibility including, but are not limited to, 1) carry the MSDSs in a tool box, 2) having a notebook of MSDSs in a vehicle, or 3) having MSDSs available at the base radio. Whatever method is chosen, the method must provide effective hazard communication to the employees.

9.0 **LABELS AND OTHER FORMS OF WARNING**

- ◆ All containers of hazardous chemicals must be labeled as described in this document. REM will provide labels for stationary and portable containers upon request.
- ◆ All chemicals and/or products (identified on the chemical inventory list) are subject to the labeling requirements of the HCS. The work area chemical inventory list must be included with document as Appendix H.
- ◆ Each **original** shipment container, portable container, and stationary process container must include the appropriate hazard warning for each chemical, or mixture as a whole, based on the method of hazard determination (29 CFR 1910.1200(d)(2) Appendix B). Specifically, each original, incoming container must be labeled, tagged, or marked by the manufacturer, importer, or distributor with at least the following information:
 - 1) Identity of the hazardous chemical(s). (Identity means the trade name or chemical name as given on the MSDS and as listed in the chemical inventory list.)
 - 2) The appropriate hazard warning including health, flammability, reactivity, and PPE data. Appendix I summarizes this data.
 - 3) Name and address of the chemical manufacturer, importer, or other responsible party.
- ◆ Chemical containers, both hazardous and non-hazardous, must be checked to ensure that they are properly labeled upon arrival. Incorrectly labeled containers should be corrected immediately.

- ◆ Alternatives and allowable exceptions to the above labeling requirements areas follows:
 - 1) Signs, placards, or bath tickets (tags) may be used on stationary process containers (i.e. 55 gallon drums, 33 gallon drums, 5 gallon carboy), if the hazards of the chemicals (as specified in 29 CFR 1910.1200(f)(4)) are effectively conveyed to the employee.
 - 2) A numbering or lettering system may be an acceptable form of identification on the above types of labels. However, all employees must be taught and understand this method of identification and know where to find the MSDSs in their work areas.
- ◆ Secondary containers for daily use and/or storing chemicals (safety cans, bottles, spray bottles, buckets, etc.) must be labeled with the trade and/or chemical name and the hazard warnings. Secondary container labels are available from REM upon request.
- ◆ The use of unmarked, portable containers of hazardous chemicals is not permitted. No exceptions will be granted. Portable secondary containers intended for immediate use must be marked with the name of the material as found on the MSDS or on the original shipment container. This will aid in preventing confusion concerning what chemical is in the container.
- ◆ Existing labels on incoming containers must not be removed or defaced unless appropriately relabeled immediately with the required information.
- ◆ Labels and other forms of warnings must be legible, in English, and prominently displayed on the container.

10.0 PROGRAM VALIDATION

Validation audits of the hazard communication program will be conducted by REM. The audits will be conducted on each DTI or group of DTIs and be relative to the area(s) which the DTI is responsible for. Audits will be scheduled for each affected DTI during the month that the DTI initially received the DTI training. The audit period shall be consistent with the University's fiscal year, July 1 through June 30.

The questions asked during the audits are provided for reference in Appendix K, Chemical Inventory and HCP Validation Checklist, form HCP-6. Compliance with the University's HazCom program will be documented using form HCP-9, Hazard Communication Program Validation Audit, form HCP-9 is included as Appendix O of this document. A copy of form HCP-9 will be sent to the DTI after the initial audit. Follow-up audits will be conducted at 30 day intervals after the initial audit until all problems have been corrected. Form HCP-9 will be re-sent after each follow-up audit to the DTI and their supervisor(s). Form HCP-9 should be kept with the other work area documentation records with the current fiscal year form kept in the written compliance manual, Appendix H.

11.0 COMMUNITY RIGHT-TO-KNOW AND EMERGENCY PLANNING

Purdue University must comply with the Environmental Protection Agency (EPA) Emergency and Hazardous Chemical Inventory Forms and Community Right-to-Know reporting requirements (40 CFR Part 370) and the corresponding Indiana regulations administered by the Indiana Department of Environmental Management (IDEM).

Any person wanting information about the presence of hazardous chemicals at Purdue University may review such information at REM, B173, Civil Engineering Building. Information available includes:

- 1) A review of the available MSDSs and the opportunity to make notes on this information. Exception: Review of such information may be denied if such information violates the trade secret criteria of 29 CFR 1910.1200.
- 2) The storage location(s) and approximate quantities of the chemicals reported on the SARA TIER II forms filed for the previous calendar year.

For purposes of Emergency Planning, the local, state planning commissions, and the Purdue Fire Department are notified of those hazardous chemicals present in amounts equal to or greater than the threshold planning quantity for each chemical. Reports are prepared annual and filed by March 1 for the previous calendar year. MSDSs may be requested from the master file in REM.

12.0 CONTRACT EMPLOYEES NOTIFICATION

Contract employees must be informed about the hazardous chemicals to which they may be exposed while working at Purdue University. The DTI must inform contract employees about the chemicals in the work area, where the MSDSs are located, any necessary safety precautions, and answer safety-related questions. A contractor or its employees may also contact REM for MSDSs and/or to ask safety and health questions.

Contractors should have a hazard communication program that meets the requirements established in 29 CFR 1910.1200. Contractors must coordinate the exchange of hazard information as specified in Facilities Planning, Bid Specifications Section 48.

APPENDIX A

OSHA HEALTH HAZARD DEFINITIONS

Appendix A to 1910.1200 - Health Hazard Definitions (Mandatory)

Although safety hazards related to the physical characteristics of a chemical can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees - such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects of signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causative factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most chemicals have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms "acute" and "chronic" are used to delineate between effects on the basis of severity or duration. "Acute" effects usually occur rapidly as result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standard Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemical (Z129.1-1988)- irritation, corrosivity, and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects that may occur as a result of occupational exposure, such as, for example, narcosis.

Similarly, the term chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity. These effects are obviously a concern in the workplace, but again, do not adequately cover the area of chronic effects, excluding, for example, blood dyscrasias (such as anemia), chronic bronchitis and liver atrophy.

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them. Appendix B, which is also mandatory, outlines the principles and procedures of hazard assessment.

For purposes of this section, any chemical that meets any of the following definitions, as determined by the criteria set forth in Appendix B are health hazards. However, this is not intended to be an exclusive categorization scheme. If there are available scientific data that involve other animal species or test methods, they must also be evaluated to determine the applicability of the HCS.

1. **Carcinogen:** A chemical is considered to be a carcinogen if:
 - a. It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or
 - b. It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (Latest edition); or
 - c. It is regulated by OSHA as a carcinogen.
2. **Corrosive:** A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the US Department of Transportation in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term shall not refer to action on inanimate surfaces.
3. **Highly toxic:** A chemical falling within any of the following categories:
 - a. A chemical that has a median lethal dose (LD₅₀) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
 - b. A chemical that has a median lethal dose (LD₅₀) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
 - c. A chemical that has a median lethal concentration (LC₅₀) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.
4. **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. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under procedure listed in 16 CFR 1500.42 or other appropriate techniques.
5. **Sensitizer:** A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.
6. **Toxic:** A chemical falling within any of the following categories:
 - a. A chemical that has a median lethal dose (LD₅₀) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
 - b. A chemical that has a median lethal dose (LD₅₀) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

- c. A chemical that has a median lethal concentration (LC₅₀) in air of more than 200 parts per million but not more than 2,000 parts per million of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

7. **Target organ effects:** The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

- | | | |
|----|---|---|
| a. | Hepatotoxins:
Signs & Symptoms:
Chemicals: | Chemicals that produce liver damage
Jaundice, liver enlargement
Carbon tetrachloride, nitrosamines |
| b. | Nephrotoxins:
Signs & Symptoms:
Chemicals: | Chemicals that produce kidney damage
Edema, proteinuria
Halogenated hydrocarbons, uranium |
| c. | Neurotoxins:

Signs & Symptoms:

Chemicals: | Chemicals that produce their primary toxic effects on the nervous system
Narcosis, behavioral changes, decrease in motor functions
Mercury, carbon disulfide |
| d. | Hematopoietic Toxins:

Signs & Symptoms:

Chemicals: | Agents that act on the blood or hematopoietic system
Decrease hemoglobin function, deprive the body tissues of oxygen
Carbon monoxide, cyanides |
| e. | Lung Toxins:

Signs & Symptoms:
Chemicals: | Agents that damage the lung. Chemicals which irritate or damage pulmonary tissue
Cough, tightness in chest, shortness of breath
Silica, asbestos |
| f. | Reproductive Toxins:

Signs & Symptoms:
Chemicals: | Chemicals that affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
Birth defects, sterility
Lead, DBCP |
| g. | Cutaneous Hazards:
Signs & Symptoms:
Chemicals: | Chemicals that affect the dermal layer of the body
Defatting of the skin, rashes, irritation
Ketones, chlorinated compounds |
| h. | Eye Hazards:
Signs & Symptoms:
Chemicals: | Chemicals that affect the eye or visual capacity
Conjunctivitis, corneal damage
Organic solvents, acids |

APPENDIX B

OSHA METHOD OF HAZARD DETERMINATION

Appendix B to 1910.1200 - Hazard Determination (Mandatory)

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process that relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance-orientation of the hazard determination does not diminish the duty of the chemical manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. **Carcinogenicity:** As described in paragraph (d)(4) of this section and Appendix A of this section, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section. In addition; however, all available scientific data on carcinogenicity must be evaluated in accordance with the provisions of this Appendix and the requirements of the rule.
2. **Human data:** Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.
3. **Animal data:** Human evidence of health effects in exposed population is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).
4. **Adequacy and reporting of data:** The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for hazard determination and reported on any material safety data sheet. In vitro studies alone generally do not form the basis for a definitive finding of hazard under the HCS since they have a positive or negative result rather than a statistically significant finding.

The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies that tend to refute the findings of hazard.

APPENDIX C

EXPANDED LIST OF DEFINITIONS

ACGIH:	American Conference of Governmental Industrial Hygienists
ACUTE:	Having a sudden onset, short rise, and short course
AEROSOL:	Liquid droplets or solid particles dispersed in air that are of fine enough size (less than 100 micrometers) to remain dispersed for a period of time
ALIPHATIC:	Open-chain carbon compounds and those cyclic carbon compounds that behave, chemically, like an open-chain compound. Examples include methane and ethane
AROMATIC:	Relates to the structural characteristics of the chemical and not to the odor of the chemical. Many aromatic compounds contain one or more six-carbon rings. Examples include benzene, toluene, naphthalene, and xylene.
ASPHYXIANT:	A vapor or gas that may cause unconsciousness or death due to lack of oxygen.
CAS:	Chemical Abstracts Service; a Columbus, Ohio organization which indexes information published in "Chemical Abstracts" by the American Chemical Society and provides index guides by which information about particular substances may be located in the "Abstracts" when needed. "CAS Numbers" identify specific chemicals.
CFR:	Code of Federal Regulations
CANCER:	A malignant tumor characterized by proliferation (rapid growth) of abnormal cells
CARCINOGEN:	A cancer-producing substance
CHEMICAL:	Any element, chemical compound or mixture of elements and/or compounds
CHEMICAL FAMILY:	A group of single elements or compounds with a common general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are of the "ketone" family; acrolein, furfural, and acetaldehyde are of the "aldehyde" family
CHEMICAL MANUFACTURER:	An employer in SIC Codes 20 through 39 with a work place where chemical(s) are produced for use or distribution

CHEMICAL NAME:	The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which clearly identifies the chemical for the purpose of conducting a hazard evaluation
CHRONIC:	Persistent, prolonged, or long duration
COMBUSTIBLE LIQUID:	Any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture
COMMON NAME:	Any designation or identification such as code name, code number, trade name, brand name, or generic name used to identify a chemical other than by its chemical name
COMPRESSED GAS:	<ul style="list-style-type: none"> i) a gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F (21.1°C); or ii) a gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or iii) a liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D-323-72
CONTAINER:	Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purpose of this section, pipes or piping systems and engines, fuel tanks, or other operating systems in a vehicle are not considered to be containers.
DUSTS:	Dusts are solid particles generated by handling, crushing, grinding, or rapid impact of organic and inorganic materials such as rock, metal, coal, wood, and grain. Dust is a term to describe airborne solid particles that range in size from 0.1 to 25 micrometers.
EPA:	US Environmental Protection Agency; Federal agency with environmental protection regulatory and enforcement authority. Administers Clean Air Act, Clean Water Act, FIFRA, RCRA, TSCA, and other federal environmental laws
EMPLOYEE:	Any individual hired by Purdue University to perform work in the Support Service areas. This does not include outside contractors hired by Purdue University.
EMPLOYER:	The employer, for purposes of this document, means Purdue University

- EXPLOSIVE:** A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature
- EXPOSURE/EXPOSED:** An employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, injection, or absorption), and includes potential (e.g., accidental or possible) exposure
- FLAMMABLE:** A chemical that falls into one of the following categories:
- i) flammable aerosol - an aerosol that when tested by the method described in 16CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening
 - ii) flammable gas:
 - a) a gas that at ambient temperature and pressure forms a flammable mixture with air at a concentration of 13 percent by volume or less; or
 - b) a gas that at ambient temperature and pressure forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit
 - iii) flammable liquid - any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture
 - iv) flammable solid - a solid, other than a blasting agent or explosive as defined in 1910.109 (a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16CFR 1500.44, it ignites and burns with a self-sustained flame at a greater than one-tenth of an inch per second along its major axis

FLASHPOINT:	The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows: <ul style="list-style-type: none"> i) Tagliabue Closed Tester (see American National Method of Test for Flash Point by Tag Closed Tested, Z11.24-1979 (ASTM D-56-79) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100°F (37.8°C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or ii) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 ASTM D 73-79) for liquids with a viscosity equal to or greater than 45 SUS at 100°F (37.8°C), or that contain suspended solids, or that have a tendency to form a surface film under test; or iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point of Setaflash Closed Tester (ASTM D 3278-78). Organic peroxides, which undergo auto accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above
FORESEEABLE EMERGENCY:	Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the work place
FORMULA:	The conventional scientific designation for a material (water is H ₂ O, sulfuric acid is H ₂ SO ₄ , sulfur dioxide is SO ₂ , etc.)
FUME:	Small solid particles that have condensed in the air resulting from the heating of a solid body. Gases and vapors are not fumes, although the terms are often mistakenly interchanged.
g:	Gram, a metric unit of weight. One ounce US (avoirdupois) is about 28.4 grams
g/kg:	Grams per kilogram; an expression of dose used in oral and dermal toxicology testing to indicate the grams of substance dosed per kilogram of animal body weight. Also see “kg” (kilogram)
GAS:	A form of matter that is neither solid nor liquid. In its normal state (at room temperature and atmospheric pressure) it can expand indefinitely to fill a container completely. A gas can be changed to the liquid or solid state under the right temperature and pressure conditions.

HAZARD WARNING:	Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazards of the chemical(s) in the container(s)
HAZARDOUS CHEMICAL:	Any chemical that is a potential/actual physical or health hazard
HEALTH HAZARD:	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 system, and agents which damage the lungs, skin, eyes, or mucous membranes
IDENTITY:	Any chemical or common name that is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS
IMMEDIATE USE:	The hazardous chemical 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 substance that by contact in sufficient concentration for a sufficient period of time, will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a single exposure or multiple exposures. Some primary irritants: chromic acid, nitric acid, sodium hydroxide, calcium chloride, amines, metallic salts, chlorinated hydrocarbons, ketones, alcohols
JOB SITE:	See work location
LABEL:	Any written, printed, or graphic material displayed on or affixed to containers of chemicals, both hazardous and non-hazardous
MATERIAL SAFETY DATA SHEET (MSDS):	Written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of 29 CFR 1910.1200
MIST:	Small suspended droplets of liquid generated by condensation of liquids from the vapor back to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing. Some examples are paint spray mist in painting operations and the condensation of water to form a fog or rain
MIXTURE:	Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction

ORGANIC PEROXIDE:	An organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical
OXIDIZER:	A chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself as through the release of oxygen or other gases
PEL:	Permissible Exposure Limit (an OSHA limit)
PHYSICAL HAZARD:	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
PRODUCE:	To manufacture, process, formulate, or repackage
PYROPHORIC:	A chemical that will spontaneously ignite in air at a temperature of 130°F (54.4°C) or below
RESPONSIBLE PARTY:	Someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary
SENSITIZER:	A material that causes an allergic reaction in an individual so that additional exposure to small amounts of the same material will cause a typical physiological reaction
SMOKE:	Small dry particles and droplets generated by the incomplete combustion of an organic material combined with and suspended in the gases from combustion
SPECIFIC CHEMICAL IDENTITY:	The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance
SOLVENT:	A substance, commonly water, but in industry often an organic compound, which dissolves another substance
SUPPORT SERVICES:	The non-academic areas of university operations. This includes, but is not limited to, Physical Plant, Printing Services, Residence Halls, Mackey Arena, Purdue University Computing Center, Engineering Computer Network, Purdue Memorial Union, and individual departmental print shops
TLV:	Threshold Limit Value (an ACGIH limit). An atmospheric concentration of a contaminant to which nearly all workers may be repeatedly exposed, over a working lifetime, without adverse effect

TRADE SECRET:	Any confidential formula, pattern, process, device, information, or compilation of information (including chemical name or other unique chemical identifier) that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it
UNSTABLE (REACTIVE):	A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature
USE:	To package, handle, react or transfer, emit, extract, or generate as a by product
WATER-REACTIVE:	A chemical that reacts with water to release a gas that is either flammable or presents a health hazard
WORK AREA:	The department or office in which an employee may work. Maintenance, Building Services, Department of Aviation Technology, the Office of the Registrar and Environmental Control and Abatement are examples of work areas
WORK LOCATION:	The site on campus and/or university property where the actual job occurs
WORK SITE:	See work location

APPENDIX D

MATERIAL SAFETY DATA SHEETS (MSDS) REQUEST PROCEDURES

If the MSDS of interest is not in the work area file, a request for a copy can be made to the Department of Radiological and Environmental Management. Requests for MSDSs must be submitted on form HCP-1. At a minimum, each request must have the date, the chemical name(s), trade name(s) (if applicable), and the manufacturers' names(s) completed.

Upon receipt of the written request, REM will supply a copy of the MSDS directly to the person requesting it, unless otherwise instructed.

If the MSDS is not in the master file, REM will:

1. Request the MSDS from the manufacturer.
2. Notify the person that the MSDS is not in the master file and that the MSDS has been requested from the manufacturer.

REM may also:

3. Notify IOSHA of the manufacturer's non-compliance if the MSDS is not received within the time specified in Section 8.0 of this document.
4. Notify the person that the manufacturer has been reported to IOSHA.

If an MSDS is unavailable the person requesting the MSDS will be notified either by phone, email, or by conventional campus mail using form HCP-2, MSDS Unavailability Statement.

HCP-1

REQUEST FORM FOR MATERIAL SAFETY DATA SHEETS

Send to: Department of Radiological & Environmental Management
Civil Engineering Room B173L

EMPLOYEE NAME (PLEASE PRINT) _____ PHONE _____

DEPARTMENT _____ FAX _____

BUILDING/ROOM _____

MSDSs REQUESTED
(Please Print or Type)

Chemical/Product Name & Product/Catalog No.

Manufacturer & City/State/Phone No.

Employee Signature

Date

Supervisor Signature

Date

-----DO NOT MARK BELOW THESE LINES-----

FOR OFFICE USE ONLY

MSDS Request Processed By: _____
IH, IH Technician or DTI

Date

HCP-2

MSDS UNAVAILABILITY STATEMENT

TO:

Employee Name

Department/Building

FROM: The Department of Radiological and Environmental Management

RE: Requested MSDSs

Chemical/Product Name

Manufacturer

_____ A copy of the above MSDS is not available from the central master file. A copy has been requested from the manufacturer and will be mailed to you upon its arrival.

_____ The company listed as manufacturer or distributor could not be located as spelled or in the city listed. **Please submit a corrected or updated company name including city/state and phone number if available to REM/CIVL, Room B173 within 10 days of receiving this.**

_____ More information is needed to locate the MSDS. **Please submit a more complete or corrected chemical/product name and product/catalog number to REM/CIVL, Room B173 within 10 days of receiving this.**

_____ The manufacturer responsible for supplying the above MSDS has not sent a copy to our office within a reasonable time period.

_____ The manufacturer responsible for supplying the above MSDS has denied our request for a copy of said MSDS claiming protection of trade secrets as specified by 29 CFR 1910.1200(i).

IH, IH Technician

Date

APPENDIX E

MSDS REQUEST TO MANUFACTURER

(Date)

(N)
(C)
(A)
(C)

Dear:

This is to request MSDSs for the following products:

Chemical/Product Name

Product/Catalog Number

It is imperative that we receive this information within 30 days of this request to maintain compliance with the OSHA Hazard Communication Standard (29 CFR 1910.1200). Please direct your response to the Department of Radiological and Environmental Management.

Sincerely,

Industrial Hygienist

APPENDIX F

MSDS PROBLEM LETTER (TRADE SECRET CLAIM)

(Date)

Director of Industrial Hygiene/IOSHA
Department of Labor
402 West Washington Street, Room W-195
Indianapolis, Indiana 46204

Dear Director:

We have made requests to our manufacturer/supplier (see attached copy) for MSDS(s) on:

Chemical/Product Name

Product/Catalog Number

_____ The manufacturer has denied our request for a copy of the above MSDS(s) claiming protection of trade secrets as specified by 29 CFR 1910.1200(i).

_____ These requests were made in a good faith effort for the purpose of obtaining information on the toxic substances contained in the above product(s). To date we have not received the requested MSDS(s) nor have we been given reason for the delay.

We ask that you investigate this situation and provide us with assistance in obtaining the information necessary to inform and protect Purdue employees.

Sincerely,

Industrial Hygienist

APPENDIX G

HCP-3

MSDS COMPLIANCE CHECKLIST 29 CFR 1910.1200(g) MATERIAL SAFETY DATA SHEET

	<u>COMPLIANCE CHECKPOINT</u>	<u>YES</u>	<u>NO</u>
1.	Is an MSDS available for each hazardous chemical used?	_____	_____
2.	Does each work area have an MSDS for each hazardous chemical used by employees in the area and/or job location?	_____	_____
3.	Is each MSDS in English?	_____	_____
4.	Does each MSDS for single chemicals contain:		
	a. The identity used on the label?	_____	_____
	b. The chemical and common name(s) for single substance hazardous chemicals?	_____	_____
5.	For mixtures tested as a whole:		
	a. Does each MSDS contain the chemical and common name(s) of ingredients which contribute to these known hazards?	_____	_____
	b. Does each MSDS contain the common name(s) of the mixture itself?	_____	_____
6.	For mixtures not tested as a whole:		
	a. Does each MSDS contain the chemical and common name(s) of all ingredients which have been determined to be health hazards and that comprise 1% or more of the composition or, as in the case of chemicals identified as carcinogens, have concentrations of 0.1% or more?	_____	_____
	b. Does each MSDS contain the chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture?	_____	_____
7.	For all MSDSs:		
	a. Does each MSDS contain the physical and chemical characteristics of the hazardous (vapor pressure, flash point, etc.)?	_____	_____
	b. Does each MSDS contain the physical hazards of the hazardous chemical, including the potential for fire, explosion and reactivity?	_____	_____
	c. Does each MSDS contain the health hazards of the hazardous chemical (including signs and symptoms of exposure, medical conditions caused or aggravated by exposure)?	_____	_____

- d. Does each MSDS contain the primary route(s) of entry? _____
 - e. Does each MSDS contain the OSHA PEL? The ACGIH TLV? Other exposure limits? _____
 - f. Does each MSDS contain information on carcinogen listings (reference OSHA regulated carcinogens, those indicated in the Material Toxicology Program (NTP) annual report and those listed by the International Agency for Research on Cancer (ARC)? _____
- NOTE: Negative conclusions regarding carcinogenicity or the fact that there is no information do not have to be reported unless there is a specific blank for carcinogens on the form.
- g. Does each MSDS contain applicable procedures and precautions for safe handling and use of the chemical (hygienic practices, maintenance, and spill procedures)? _____
 - h. Does each MSDS contain applicable control (engineering controls, work practices, or personal protective equipment)? _____
 - i. Does each MSDS contain emergency and first aid procedures? _____
 - j. Does each MSDS contain date of preparation or last change? _____
 - k. Does each MSDS contain the name, address, and telephone number of the chemical manufacturer, importer, employer or other responsible party? _____
 - l. Are all sections of the MSDS completed? If not, are the sections marked to indicate that no applicable information was found? _____

APPENDIX H

INSERT THE FOLLOWING COMPLETED WORK AREA
FORMS FOR THE CURRENT FISCAL YEAR

Chemical Inventory Form, HCP-4

Employee Exposure Information, HCP-5

Employee Right-To-Know Training Attendance Record, HCP-8

APPENDIX I

HEALTH HAZARD WARNING INFORMATION

Labeling is an important means of communicating container contents and potential hazards associated with chemicals. Furthermore, it is important to use a coding or labeling system that communicates such hazards to the people who come in contact with chemicals. Attempts have been made to standardize the coding used on container labels with Material Safety Data Sheets to communicate the health, flammability, reactivity hazards, and personal protective equipment required for each chemical (product). The rating codes used in the Hazardous Material Identification System (HMIS) and by the National Fire Protection Association (NFPA) are included in this appendix for reference.

The NFPA coding and symbol appears on the top of many MSDSs. The NFPA and HMIS rating numbers convey the same hazard potential. That is, 0=minimal or insignificant hazard; 1=slight hazard; 2=moderate hazard; 3=serious or high chance of hazard; 4=severe or extreme hazard.

All containers should be labeled. Even if the chemical is considered non-hazardous, labeling is important for the following reasons:

- ◆ to avoid forgetting what material is in which container
- ◆ to be able to determine proper treatment, quickly, in case of an accident
- ◆ to avoid mixing incompatible chemicals

Information about what is to be included on labels is given in Section 9.0 of the HCS written program. Labels will be available upon request from REM.

SUMMARY OF HMIS RATINGS

I. HEALTH HAZARD RATING

0	Minimal Hazard:	No significant risk to health
1	Slight Hazard:	Irritation or minor reversible injury possible
2	Moderate Hazard:	Temporary or minor injury may occur
3	Serious Hazard:	Major injury likely unless prompt action is taken and medical treatment is given
4	Severe Hazard:	Life-threatening, major or permanent damage may result from single or repeated exposure

Note: Use of an asterisk (*) or other designation indicates that there may be chronic health effects present. See safety file on the product.

II. FLAMMABILITY HAZARD RATING

- 0 Minimal Hazard: Materials that are normally stable and will not burn unless heated
- 1 Slight Hazard: Materials that must be preheated before ignition will occur. Flammable liquids in this category will have flash points (the lowest temperature at which ignition will occur) at or above 200°F (NFPA Class IIIB)
- 2 Moderate Hazard: Material that must be moderately heated before ignition will occur, including flammable liquids with flash points at or above 100°F and below 200°F (NFPA Class II & Class IIIA)
- 3 Serious Hazard: Materials capable of ignition under almost all normal temperature conditions, including flammable liquids with flash points below 73°F and boiling points above 100°F as well as liquids with flash points between 73°F and 100°F (NFPA Class IB & IC)
- 4 Severe Hazard: Very flammable gases or very volatile flammable liquids with flash points below 73°F and boiling points below 100°F (NFPA Class IA)

III. REACTIVITY HAZARD RATING

- 0 Minimal Hazard: Materials that are normally stable, even under fire conditions, and will not react with water
- 1 Slight Hazard: Materials that are normally stable but can become unstable at high temperatures and pressures. These materials may react with water but they will not release energy violently
- 2 Moderate Hazard: Materials that, in themselves, are normally unstable and will readily undergo violent chemical change but will not detonate. These materials may also react violently with water
- 3 Serious Hazard: Materials that are capable of detonation or explosive reaction but require a strong initiating source or must be heated under confinement before initiation, or materials that react explosively with water
- 4 Severe Hazard: Materials that are readily capable of detonation or explosive decomposition at normal temperatures and pressures

IV. CHRONIC EFFECTS INFORMATION

Chronic health effects are not rated because of the complex issues involved and the lack of standardized classifications and tests. However, based on information provided by the supplier, the presence of chronic effects may be indicated by (1) use of an asterisk (*) or other designation after the health hazard rating corresponding to other information that may be available; or (2) use of written warnings in the upper white section of the HMIS label.

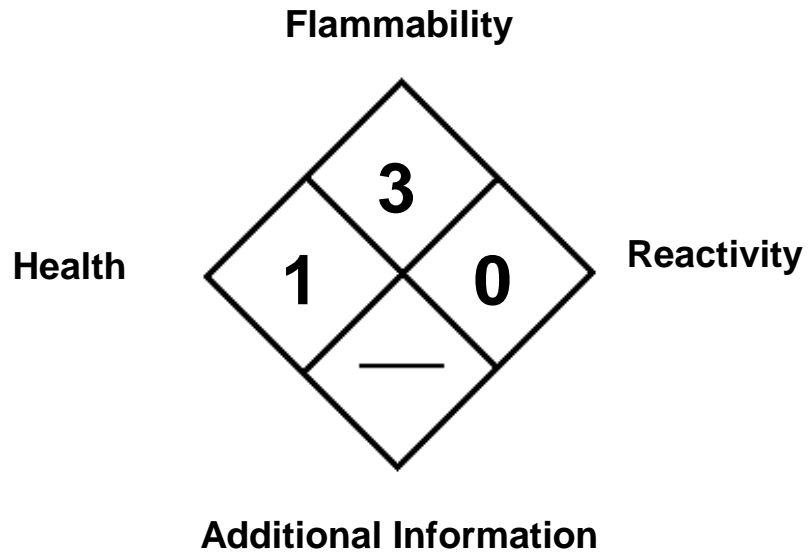
V. PERSONAL PROTECTIVE EQUIPMENT

Information provided by the supplier will be used by the paint manufacturers to determine the proper personal protective equipment. See additional PPE symbols listing.

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
HAZARD COMMUNICATION DIAMOND
(NFPA DIAMOND)**

**RATING NUMBERS FOR COMPLETING
THE NFPA DIAMOND**

- 4 = EXTREME
- 3 = HIGH
- 2 = MODERATE
- 1 = SLIGHT
- 0 = INSIGNIFICANT



Example personal protective equipment and product information symbol decals available from NFPA. This is a partial listing.



Explosive



Dust Mask



Face Shield



Air Purifying
Respirator



Goggles



Corrosive



Gloves



Full Suit



Apron



Boots

APPENDIX J

PROCEDURES FOR COMPLETING HCP-4 AND HCP-5 (Both Forms Submitted Annually)

The Chemical Inventory Form, HCP-4 should be completed as thoroughly and accurately as possible with the most recent information you have available. The following descriptions explain what information is needed in each of the five columns. A separate form must be submitted for each storage location. (An example is included on Page 37 of this document.)

1. **Chemical/Product Name & Product/Catalog Number:** The name of the product as found on the product label and/or the MSDS. This may be a trade name, chemical name, or product name. This section also includes the product/catalog number which may be found on the container, container label, or container lid.
2. **Manufacturer Name:** The name of the company who makes, sells, or distributes the product. This information may be found on the container or container label.
3. **City/State/Phone Number of Manufacturer:** Locate the city/state for the manufacturer/seller/distributor on the container or container label. If a phone number is listed, include phone number on inventory form. Some manufacturers/sellers/distributors may not include all three pieces of information. Please include the maximum information available from the container or container label.
4. **Operation or Process of Use:** Briefly describe how the chemical is used in your work area.
5. **MSDS? (Yes or No):** Do you have a copy of a MSDS for the product(s) being reported? Yes or No.

The Employee Exposure Information, HCP-5 must also be included with each Chemical Inventory Form, HCP-4.

1. List the employees who may work with or are exposed to the chemicals in each location reported.
 - a. This list must be completed on HCP-5. If all employees are equally exposed then state "see attached chemical inventory form" under the CHEMICAL column. **All employees must be listed by name** under the EMPLOYEE EXPOSED column
2. Attach form HCP-5 to form HCP-4 for each location of chemicals you are reporting and submit together to Radiological and Environmental Management. This will serve as a record of who has (had) potential for exposure to the various chemicals in each work area. These documents are to serve as originals.

FORM HCP-4
CHEMICAL INVENTORY FORM

Work Area/Department Radiological & Environmental Management

Date June 2002

Location of Chemicals Being Reported B173

Person Completing This Report Stephanie Rainey

DTI Stephanie Rainey

CHEMICAL/PRODUCT NAME & PRODUCT CATALOG NUMBER	MANUFACTURER NAME	CITY/STATE PHONE NUMBER OF MANUFACTURER	OPERATION OR PROCESS OF USE	MSDS (Yes or No)
Sharpie Extra Fine Point Permanent Marker 35001 Black	Sanford Corporation	Bellwood, IL	Label Marking	Yes
Lemon Pledge (Institutional Size) 1096	S.C. Johnson & Son, Inc.	Racine, WI	Furniture Polishing	No
Rustmaster Enamel 1236 Shrub Green	The Glidden Company	Cleveland, OH	Painting	Yes
Rustmaster Enamel 1239 Osha Orange	The Glidden Company	Cleveland, OH	Painting	Yes
Palmolive Dishwashing Liquid & Antibacterial Hand Soap	Colgate-Palmolive Company	New York, NY 800-338-8388	Dishwashing	No
HEET Gas Line Antifreeze & Water Remover	DeMert & Dougherty	Westchester, IL 800-323-3219	Gas Antifreeze	Yes
Guardian Adhesive Spray	Control Resource Systems, Inc.	Michigan City, IN 800-272-3786	Bonding Polyethylene	Yes
ABC Fiberspray (Airless Spray Encapsulant)	Fiberlock Technologies, Inc.	Cambridge, MA	Asbestos Encapsulation	No
DE-TAC	CRSI Environmental Systems	Michigan City, IN 219-872-5591	Solvent	No
Liquid Paper Multi Fluid 563-01	The Gillette Company	Boston, MA	Typewritten Correction	Yes
Staticide Wipes SW-12	ACL Staticide	Elk Grove Village, IL	Cleaning Equipment	Yes
Sparco Brand Multipurpose White Glue 01261	S.P. Richards Co.	Atlanta, GA	Adhesive	Yes
Potassium Sulfate Powder 3282	J.T. Baker Inc.	Phillipsburg, NJ	Laboratory Reagent	Yes
Stripcoat TLC	Bartlett Services, Inc.	Plymouth, MA	Paint Stripping	Yes

FORM HCP-4
CHEMICAL INVENTORY FORM

Work Area/Department _____

Date _____

Location of Chemicals Being Reported _____

Person Completing This Report _____

DTI _____

CHEMICAL/PRODUCT NAME & PRODUCT CATALOG NUMBER	MANUFACTURER NAME	CITY/STATE PHONE NUMBER OF MANUFACTURER	OPERATION OR PROCESS OF USE	MSDS (Yes or No)

HCP-5

EMPLOYEE EXPOSURE INFORMATION

WORK AREA/DEPARTMENT _____ DATE _____

SUPERVISOR _____ NAME OF INDIVIDUAL
COMPLETING THIS REPORT _____

LOCATION OF CHEMICALS
BEING REPORTED _____ TITLE _____

CHEMICAL/PRODUCT NAME

EMPLOYEE EXPOSED

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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_____	_____

APPENDIX K

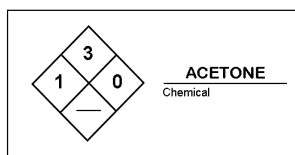
HCP-6

CHEMICAL INVENTORY AND HCP VALIDATION CHECKLIST

Work Area/Department _____ Audit Date _____

DTI(s) _____ Person Completing Audit _____

- _____ 1. The Written Compliance Manual needs to be available to employees at all times. Please be sure to have the most recent copy (October 2003).
- _____ 2. HCP-4 Chemical Inventory Form for the current fiscal year.
- _____ 3. HCP-5 Employee Exposure Information for the current fiscal year.
- _____ 4. Conduct RTK Training for employees in your work area for the current fiscal year and submit to REM on form HCP-8 Employee Right-To-Know Training Attendance Record. (New hires must be trained before they can begin work. Existing employees must receive refresher training once a year.) (Videos are available from REM upon request.)
- _____ 5. Locate the current fiscal year copies of the HCP-4 Chemical Inventory Form, HCP-5 Employee Exposure Information, and HCP-8 Employee Right-To-Know Training Attendance Record in Appendix H of the Written Compliance Manual.
- _____ 6. Display "You Have A Right-To-Know" Poster in work area.
- _____ 7. Display Appendix P "Written Right-To-Know Program" in work area.
- _____ 8. Secondary containers need to be labeled with the name and hazard information of the contents of the container. Labels are available from REM upon request.



This is an example of how your labels should look.

- _____ 9. MSDSs need to be up-to-date and readily available to employees on all workshifts.

APPENDIX L

HCP-7

DTI CERTIFICATION

I acknowledge that I have received Hazard Communication Training. I have been informed about the labeling, MSDS, and training requirements of the law and the University's Hazard Communication Program.

EMPLOYEE NAME (PLEASE PRINT) _____ DATE _____

JOB FUNCTION/TITLE _____ PHONE _____

EMAIL ADDRESS _____ FAX _____

DEPARTMENT _____ WORK AREA _____

DESIGNATED TRAINED INDIVIDUAL YES _____ NO _____

SUPERVISOR _____

SIGNATURE _____

HCP-8

EMPLOYEE RIGHT-TO-KNOW TRAINING ATTENDANCE RECORD

DTI CONDUCTING TRAINING _____ DATE _____

LOCATION OF TRAINING _____

DEPARTMENT _____ WORK AREA _____

DTI RESPONSIBLE FOR WORK AREA _____

By printing and signing my name below, I acknowledge that I have received training specific to my work area about how to read and find information on an MSDS, where MSDSs are located in my work area, and what labeling requirements are at Purdue University.

ATTENDANCE

NAME (Please Print)	SIGNATURE	PUID Number	DATE	BLDG. or RES. HALL
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
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_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

APPENDIX M

OSHA "HAZARD COMMUNICATION"

Final Rule 9 February 1994

Subpart Z of Part 1910 of Title 29 of the Code of Federal Regulations (CFR) is hereby amended by adding a new paragraph 1910.1200 to read as follows:

1910.1200 Hazard Communication

(a) **PURPOSE.** (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets, and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of evaluating the potential hazards of chemicals, and communicating information requirements of a state, or political subdivision of a state, pertaining to this subject. Evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for developing and maintaining a written hazard communication program for the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of material safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of state may adopt or enforce, through any court or agency, any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) **SCOPE AND APPLICATION.** (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of hazard communication program, labels and other forms of warning, material safety data sheets, and information to employers. (Employers who do not produce or import chemicals need only focus on those parts of this rule that deal with establishing a workplace program and communicating information to their workers. Appendix E of this section is a general guide for such employers to help them determine their compliance obligations under the rule.)

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible during each workshift to laboratory employees when they are in their work areas;

(iii) Employers shall ensure that laboratory employees are provided information and training in accordance with paragraph (h) of this section, except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section; and,

(iv) Laboratory employers that ship hazardous chemicals are considered to be either a chemical manufacturer or a distributor under this rule, and thus must ensure that any containers of hazardous chemicals leaving the laboratory are labeled in accordance with paragraph (f)(1) of this section, and that a material safety data sheet is provided to distributors and other employers in accordance with paragraphs (g)(6) and (g)(7) of this section.

(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet as soon as possible for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(5) This section does not require labeling of the following chemicals:

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(ii) Any chemical substance or mixture as such terms are defined in the Toxic Substances Control Act (15 U.S.C. 2601 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(iii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device or product, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.) or the Virus-Serum-Toxin Act of 1913 (21 U.S.C. 151 et seq.), and regulations issued under those Acts, when they are subject to the labeling requirements under those Acts by either the Food and Drug Administration or the Department of Agriculture;

(iv) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 et seq.) and regulations issued under that Act when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol, Tobacco, and Firearms;

(v) Any consumer products or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirements of those Act, or regulations issued under those Acts by the Consumer Product Safety Commission; and,

(vi) Agricultural or vegetable seed treated with pesticides and labeled in accordance with the Federal Seed Act (7 U.S.C. 1551 et seq.) and the labeling regulations issued under that Act by the Department of Agriculture.

(6) This section does not apply to: (i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Any hazardous substance as such term is defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(42 U.S.C. 9601 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

- (iii) Tobacco or tobacco products;
 - (iv) Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility (wood or wood products which have been treated with a hazardous chemical covered by this standard, and wood which may be subsequently sawed or cut, generating dust, are not exempted);
 - (v) Articles (as that term is defined in paragraph(c) of this section);
 - (vi) Food or alcoholic beverages which are sold, used, or prepared in a retail establishment (such as a grocery store, restaurant, or drinking place), and foods intended for personal consumption by employees while in the workplace;
 - (vii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.), when it is in solid, final form for direct administration to the patient (e.g., tablets or pills); drugs which are packaged by the chemical manufacturer for sale to consumers in a retail establishment (e.g., over-the-counter drugs); and drugs intended for personal consumption by employees while in the workplace (e.g., first aid supplies);
 - (viii) Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by employees while in the workplace;
 - (ix) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended;
 - (x) Nuisance particulates where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard covered under this section;
 - (xi) Ionizing and nonionizing radiation; and,
 - (xii) Biological hazards.
- (c) **DEFINITIONS.**

“**Article**” means a manufactured item other than a fluid or particle: (1) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

“**Assistant Secretary**” means the Assistant Secretary of Labor for Occupational Safety and Health, US Department of Labor, or designee.

“**Chemical**” means any element, chemical compound or mixture of elements and/or compounds.

“**Chemical manufacturer**” means an employer with a workplace where chemical(s) are produced for use or distribution.

“**Chemical name**” means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

“**Combustible liquid**” means any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

“**Commercial account**” means an arrangement whereby a retail distributor sells hazardous chemicals to an employer, generally in large quantities over time and/or at costs that are below the regular retail price.

“**Common name**” means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

“Compressed gas” means:

- (i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F (21.1°C); or
- (ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or
- (iii) A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D-323-72.

“Container” means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

“Designated representative” means any individual or organization to whom an employee gives written authorization to exercise such employee’s rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

“Director” means the Director, National Institute for Occupational Safety and Health, US Department of Health and Human Services, or designee.

“Distributor” means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

“Employee” means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

“Employer” means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

“Explosive” means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

“Exposure or exposed” means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. “Subjected” in terms of health hazard includes any route of entry (e.g. inhalation, ingestion, skin contact, or absorption.)

“Flammable” means a chemical that falls into one of the following categories:

- (i) Aerosol, flammable means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
- (ii) Gas, flammable means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;
- (iii) Liquid, flammable means any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoint of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.
- (iv) Solid, flammable means a solid, other than a blasting agent or explosive as defined in 1910.109 (a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44 it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major area axis.

“Flashpoint” means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D-56-79) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100°F (37.8°C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D-93-79) for liquids with a viscosity equal to or greater than 45 SUS at 100°F (37.8°C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)).

Organic peroxides, which undergo auto accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

“Foreseeable emergency” means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

“Hazardous chemical” means any chemical which is a physical hazard or a health hazard.

“Hazard warning” means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical or health hazard(d), including target organ effects, of the chemical(s) in the container(s). (See the definitions for “physical hazard” and “health hazard” to determine the hazards which must be covered.)

“Health hazard” 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. The term “health hazard” included chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

“Identity” means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

“Immediate use” means that the hazardous chemical 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.

“Importer” means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

“Label” means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

“Material safety data sheet (MSDS)” means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

“Mixture” means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

“Organic peroxide” means an organic compound that contains the bivalent O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

“Oxidizer” means a chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

“**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.

“**Produce**” means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

“**Pyrophoric**” means a chemical that will ignite spontaneously in air at a temperature of 130°F(54.4°C) or below.

“**Responsible party**” means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

“**Specific chemical identity**” means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

“**Trade secret**” means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer’s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D sets out the criteria to be used in evaluating trade secrets.

“**Unstable (reactive)**” means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

“**Use**” means to package, handle, react, emit, extract, generate as byproduct, or transfer.

“**Water-reactive**” means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

“**Work area**” means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

“**Workplace**” means an establishment, job site, or project, at one geographical location containing one or more work areas.

(d) **HAZARD DETERMINATION.** (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the Criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety Health Administration (OSHA); or,

(ii) Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment, American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition). The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), Annual Report on Carcinogens (latest edition);

(ii) International Agency for Research on Cancer (IARC) Monographs (latest editions);

or

(iii) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

Note: The registry of Toxic Effects of Chemical Substances published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(e) **WRITTEN HAZARD COMMUNICATION PROGRAM.** (1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for the individual work areas); and,

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(2) Multi-employer workplaces. Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(i) The methods the employer will use to provide the other employer(s) on-site access to material safety data sheets for each hazardous chemical the other employer(s) employees may be exposed to while working;

(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20 (e).

(5) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

(f) **LABELS AND OTHER FORMS OF WARNING.**

(1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s);

(ii) Appropriate hazard warnings; and chemical manufacturer, importer, or other responsible part.

(iii) Name and address of the chemical manufacturer, importer, or other responsible party.

(2)(I) For solid metal (such as a steel beam or a metal casting), solid wood, or plastic items that are not exempted as articles due to their downstream use, or shipments of whole grain, the required label may be transmitted to the customer at the time of the initial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes;

(ii) The label may be transmitted with the initial shipment itself, or with the material safety data sheet that is to be provided prior to or at the time of the first shipment; and

(iii) This exception to requiring labels on every container of hazardous chemicals is only for the solid material itself, and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the material and to which employees handling the items in transit may be exposed (for example, cutting fluids or pesticides in grains).

(3) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under the Act by the Department of Transportation.

(4) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor, or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.

(5) Except as provided in paragraphs (f)(6) and (f)(7) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and,

(ii) Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

(6) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written material in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(5) of this section to be on a label. The written material shall be readily accessible to the employees in their work area throughout each work shift.

(7) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. For purposes of this section, drugs which are dispensed by a pharmacy to a health care provider for direct administration to a patient are exempted from labeling.

(8) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(9) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is present in English as well.

(10) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.

(11) Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within three months of becoming ware of the new information. Labels on containers of hazardous chemicals shipped after that time shall contain the new information. If the chemical is not currently produced or imported, the chemical manufacturer, importers, distributor, or employer shall add the information to the label before the chemical is shipped or introduced into the workplace again.

(g) **MATERIAL SAFETY DATA SHEETS.** (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet in the workplace for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English (although the employer may maintain copies in other languages as well), and shall contain at least the following information:

(i) The identity used on the label, and, except as provided for in paragraph (i) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole;

(1) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d) of this section shall be listed if the concentrations are 0.1% or greater; and,

(2) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1% (0.1% for carcinogens) of the mixture, if there is evidence that the ingredients(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees; and,

(3) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;

(ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(v) The primary route(s) of entry;

(vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available;

(vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Annual Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions), or by OSHA;

(viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;

(ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;

(x) Emergency and first aid procedures;

(xi) The date of preparation of the material safety data sheet or the last change to it; and,

(xii) The name, address, and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer, or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6)(i) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their initial shipment, and with the first shipment after a material safety data sheet is updated;

(ii) The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;

(iii) If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributors or employer shall obtain one from the chemical manufacturer or importer as soon as possible; and,

(iv) The chemical manufacturer or importer shall also provide distributors or employers with a material safety data sheet upon request.

(7)(i) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a material safety data sheet is updated;

(ii) The distributor shall either provide material safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;

(iii) Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available;

(iv) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also, as an alternative to keeping a file of material safety data sheets for all hazardous chemicals they sell, provide material safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a material safety data sheet is available;

(v) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have material safety data sheets on file (i.e., the retail distributor does not have commercial accounts and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a material safety data sheet can be obtained;

(vi) Wholesale distributors shall also provide material safety data sheets to employers or other distributors upon request; and,

(vii) Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20(e). The Director shall also be given access to material safety data sheets in the same manner.

(h) **EMPLOYEE INFORMATION AND TRAINING.** (1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.

(2) Information. Employees shall be informed of;

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and,

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(3) Training. Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) 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; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

(i) **TRADE SECRETS.** (1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

- (i) The claim that the information withheld is a trade secret can be supported;
- (ii) Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;
- (iii) The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,
- (iv) The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i) (3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (1)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing the medical or other occupational health services to exposed employee(s), and to employees or designated representative, if;

- (i) The request is in writing;
- (ii) The request describes with reasonable detail one or more of the following occupational health needs for the information.
 - (A) To assess the hazards of the chemicals to which employees will be exposed;
 - (B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;
 - (C) To conduct pre-assignment or periodic medical surveillance of exposed employees;
 - (D) To provide medical treatment to exposed employees;
 - (E) To select or assess appropriate personal protective equipment for exposed employees;

and,

- (F) To design or assess engineering controls or other protective measures for exposed employees, and;
- (G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

- (A) The properties and effects of the chemical;
- (B) Measures for controlling workers' exposure to the chemical;
- (C) Methods of monitoring and analyzing worker exposure to the chemical; and,
- (D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

- (4) The confidentially agreement authorized by paragraph (i)(3)(iv) of this section:
- (i) May restrict the use of the information to the health purposes indicated in the written statement of need;
 - (ii) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,
 - (iii) May not include requirements for the posting of a penalty bond.
- (5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.
- (6) If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.
- (7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must:
- Be provided to the health professional, employee, or designated representative, within thirty days of the request;
 - (ii) Be in writing;
 - (iii) Include evidence to support the claim that the specific chemical identity is a trade secret;
 - (iv) State the specific reasons why the request is being denied; and,
 - (v) Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.
- (8) The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.
- (9) When a health professional, employee, or designated representative refers to the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:
- (i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret;
 - (ii) The health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and,
 - (iii) The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.
- (10)(i) If OSHA determines that the specific chemical identity requested under paragraph (i)(3) of this section is not a bona fide trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.
- (ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm for the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitation or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.
- (11) If a citation for a failure to release specific chemical identity information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation in camera or issue appropriate orders to protect the confidentiality of such matters.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the assistant secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

APPENDIX N

EXAMPLE TRAINING OUTLINE FOR DTIs

Part I

Introduction

Overview of OSHA HCS

Overview of Purdue HCP

- ◆ Purpose
- ◆ Applicability
- ◆ Employee Rights and Responsibilities
- ◆ Employer Rights and Responsibilities
- ◆ Designated Trained Individuals
- ◆ Labels and Labeling System
- ◆ Material Safety Data Sheets
- ◆ Employee Training
- ◆ Availability of Documents/Information

Part II

Basic Definitions

Basic Concepts

1. Physical States
(solid, liquid, gas)
2. Pollutant Characteristics
(particulate dust, fumes, mists, spray, smoke)
Gaseous
(gas, vapor)
3. Routes of Entry
(inhalation, ingestion, injection, absorption)
4. Cause and Effect Relationships
(concentration, time toxicity)
(systemic vs. local exposure)
(acute vs. chronic exposure)
5. Threshold Concepts
(susceptibility)
(TLVs/PELs)
6. Health Hazards
(irritant, carcinogen, CNS, etc.)
7. Physical Hazards
(flammables, combustibles, reactives, etc.)

Control/Mitigation Techniques

1. Worker Training
2. Engineering Controls
3. Administrative Controls
4. Personal Protective Equipment

Part III

Implementing a Work Area Program

1. Chemical Inventory
2. MSDS Collection & Maintenance
3. Labeling
4. Training

APPENDIX O

HCP-9

HAZARD COMMUNICATION PROGRAM VALIDATION AUDIT

Work Area/Department _____ Audit Date _____

DTI(s) _____ Person Completing Audit _____

This validation audit process is conducted to determine the effectiveness of the University's Hazard Communication Program. The audit is based on the requirements of Federal Hazard Communication Standard (29 CFR 1910.1200) and the Purdue University's Written Hazard Communication Program (Right-to-Know Compliance Manual.)

- 1. Within the scope of this audit, no areas of concern were identified.
- 2. The auditor verified the steps taken to correct the areas of concern identified during the last audit.
- 3. The audit process identified areas of concern with your program. The areas of concern are checked below.
 - A. Container Labels
 - 1. Containers were not labeled or marked.
 - 2. Labels were not legible, in English, nor prominently displayed on containers.
 - 3. Label information was incomplete or improper as specified: _____

 - B. Material Safety Data Sheets (MSDSs).
 - 1. Not readily available to all employees on all workshifts.
 - 2. MSDSs are not available for all chemicals of concern.
 - C. Employee Information and Training (HCP-8):
 - 1. Employee training has not been conducted as specified: _____

 - 2. Employees are not aware of the hazardous chemicals used in their work area.

- 3. Employees do not know the location or availability of the Written Hazard Communication Program.
- 4. Employees are not aware of in-house labeling requirements.
- 5. Employees have not been properly trained to interpret labels.
- 6. Employees have not been properly trained to read an MSDS.
- 7. Employees have not been properly trained in the purpose and use of personal protective equipment (PPE).
- 8. Safe handling procedures have not been explained to the employees.
- 9. Employees have not been properly trained in work area caution and other warning signs.
- 10. Training has not been properly documented using form HCP-8.

D. Chemical Inventories (HCP-4):

- 1. Information was incomplete as specified: _____

E. Employee Exposure Information (HCP-5):

- 1. Information was incomplete as specified: _____

F. Current fiscal year work area forms HCP-4, HCP-5, HCP-8 have not been included in Appendix H of the Written Compliance Manual.

G. _____

H. _____

Corrective measures must be taken within 30 days from receipt of this notice.

 Auditor Signature

 Date

APPENDIX P

WRITTEN RIGHT-TO-KNOW PROGRAM FOR

PRIME Lab

PREPARED BY Ken Mueller (Work Area and/or Location) DATE 3/25/2014

It is the policy of Purdue University to ensure that chemical hazards are identified within each work area and that chemical hazard information is made available to all personnel who may be potentially exposed.

This document provides information on how the Purdue Right-to-Know Program will be implemented in our work area. This document is a requirement of the "Purdue University Hazard Communication Compliance Manual", a manual which provides detailed information on implementing a hazard communication program at Purdue University. For questions concerning the overall university program, the Occupational Safety and Health Administration (OSHA) Hazard Communication regulations, or hazard communication terms you may not understand, you should refer to this manual.

The **Purdue University Hazard Communication Compliance Manual** for our work area is:

<http://www.physics.purdue.edu/primelab/safety/Safety%20Resources/HCPmenu.htm>

(Location)

The **Designated Trained Individual (DTI)** for our work area is:

Ken Mueller

(DTI)

The DTI is responsible for assuring that all aspects of the Purdue Right-to-Know Program are implemented in our work area. This individual maintains an inventory of hazardous materials used in our work area, collects Material Safety Data Sheets for all hazardous chemicals used in this workplace, assures that all hazardous chemicals are properly labeled, and assures that information is provided to all individuals working in this location on the hazards associated with the chemicals and procedures for the safe use of the chemicals. Information may be provided through training classes, individual discussions, or both. The DTI will document all training provided using form HCP-8, Employee Right-to-Know Training Attendance Record, which you must sign after being trained. A copy of this form will be provided to REM/CIVL/B173.

The **Material Safety Data Sheets (MSDSs)** location for our work area is:

<http://www.physics.purdue.edu/primelab/safety/MSDS-Search/index.htm>

(Location)

MSDSs are available to all personnel working in this area for all work shifts. If a Material Safety Data Sheet is not available for a product you are working with, you should see the DTI or your supervisor. The DTI can request a Material Safety Data Sheet from REM using form HCP-1, Employee Request for Material Safety Data Sheets. If you do not understand the information on an MSDS, contact your DTI or your supervisor.

Chemical Labeling

All hazardous chemicals used in this area should be properly labeled. If a material is not labeled, the label is damaged, or if you have any questions concerning the information on the label, contact your DTI or your supervisor. Do not use a chemical that is not clearly labeled.

You should know and understand the hazards of all materials you are working with in this area and take the recommended precautions for safe use of these materials. If you have any questions concerning the hazards of a product, or the procedures for safe use of the product, contact the DTI or your supervisor.

Personnel from REM are available to provide assistance with all aspects of the Right-to-Know Program. You can call 40204, 43152 or 46371 for any questions pertaining to this program which the DTI or supervisor cannot answer.