



ARIZONA STATE UNIVERSITY
Department of Environmental Health & Safety
Hazard Communication Program
(Employee Right-to-Know)
Pursuant to 29 CFR § 1910.1052

Revision Date: Feb. 2009

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Introduction and Purpose

Approximately 32 million workers are potentially exposed to one or more chemical hazards daily. There are an estimated 650,000 existing chemical products, and hundreds of new ones are being introduced annually into the work place.

As a result of recognizing the serious nature of safety and health problems associated with worker exposure to hazardous chemicals and employer/employee lack of chemical knowledge, the Occupational Safety and Health Administration (OSHA) issued a final rule in 1983 called Hazard Communication, 29 CFR § 1910.1200, also known as Employee Right-To-Know. This rule applied to the employers in the manufacturing sector of industry. The scope of the rule was expanded in 1987 to include employers in the non-manufacturing sector. The primary goal of the standard is to assure employees and employers are adequately informed of chemical hazards in the work place and are provided with information on how to protect them while using hazardous chemicals.

It is the responsibility of ASU to provide a safe workplace for its employees. The main objective of the Arizona State University (ASU) Hazard Communications Program (Hazcom) is to minimize employee exposure to hazardous chemicals in the workplace. The HAZCOM ensures that employees are informed of the potential hazards in their workplace, and also the appropriate means to protect themselves. When chemicals are used by ASU employees in the performance of their duties, these activities shall be conducted in accordance with the provisions of the HAZCOM. The written HAZCOM shall be readily available to all employees, employee representatives and appropriate regulatory agencies upon request.

Scope and Application

ASU is classified as a non-manufacturing employer where employees use a variety of hazardous chemicals (in smaller quantities compared to industry) during their employment. Therefore, the Hazard Communication Standard ("Employee Right-To-Know") applies to any ASU facility or department that uses hazardous chemicals. **Hazardous Chemicals** are defined by OSHA as any chemical which poses a physical hazard or a health hazard. This is determined by information in the MSDS. At ASU, we address the requirements of these regulations through this written Hazard Communication Program and our Laboratory Safety Program. Any use of Hazardous Chemicals other than in a laboratory registered with EH&S is covered by this program. Laboratory uses of Hazardous Chemicals are addressed through EHS 104 Hazardous Laboratory Chemicals at <http://www.asu.edu/aad/manuals/ehs/ehs104.html>. This exemption to this program and other are described below.

The ASU Hazard Communication Program covers all use of hazardous materials on campus except the following:

- Laboratory Reagents (for procedures applicable to laboratories, refer to the ASU Chemical Hygiene Program available at http://www.asu.edu/uagc/EHS/documents/asu_chp.pdf)

- Hazardous waste (for procedures applicable to hazardous waste, refer to the ASU Hazardous Waste Management Compliance Guidelines available at http://uabf.asu.edu/ehs_hazmat_compliance_guidelines);
- Biological Hazards (for procedures applicable to biological hazards, refer to the ASU Biosafety Program available at http://uabf.asu.edu/biosafety_program);
- Ionizing and non-ionizing radiation (for procedures applicable to radiation safety please refer to , the Office of Radiation Safety at <http://www.asu.edu/radiationsafety/>);
- Asbestos (for procedures applicable to asbestos management, refer to the ASU Asbestos Management Program available at http://uabf.asu.edu/asbestos_management_program);
- Tobacco or tobacco products;
- Wood or wood products;
- Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace;
- Pesticides; or
- Work operations where employees only handle substances in sealed containers that are not opened.

The standard requires ASU to:

- Ensure hazard identification;
- Determine employee exposure to hazardous chemicals;
- Develop a written hazard communication Program;
- Inform employees of identified potential hazards;
- Provide training and information on safe work practices;
- Establish a file of the chemicals used;
- Acquire and distribute Material Safety Data Sheets (MSDS) for each chemical used;
- Maintain a container labeling system; and
- Establish record keeping procedures.

Responsibilities

Environmental Health & Safety

The Department of Environmental Health & Safety (EH&S) is charged with the overall responsibility to develop and implement a Hazard Communication Program for ASU. HAZCOM ensures regulatory compliance and provides employees with the information and training needed to protect them while using hazardous chemicals. EH&S is responsible for the following:

- Supporting Departmental Safety Committees as requested;
- Maintaining master chemical inventories for each campus;
- Providing technical assistance and training materials to departments;
- Maintaining training records;
- Serving as liaison to regulatory agencies; and

- Conducting audits and evaluations of program effectiveness.

Deans, Directors and Chairs

The Dean, Director or Chair for each department and/or college or their designees are responsible for the following:

- Ensuring participation of affected employees in EH&S required training programs;
- Establishing and implementing department specific information and training programs as recommended by EH&S;
- Maintaining required MSDS and ensuring availability to employees; and
- Providing to EH&S an inventory or Master List of hazardous chemicals used within their organizations;
- Notifying all vendors and contractors working in locations under their control of hazard chemicals that are in the area, making MSDS available to them and obtaining written acknowledgment of receipt of this information;
- Ensuring that prior to the initiation of work, any outside contractor or vendor provides the area department and/or unit with an MSDS for each chemical being used during the work project and that a copy of each MSDS is available at the location for each chemical being used entire duration the chemical is in use; and
- Utilizing the Sunrise system for all hazardous chemical purchases...
- Department; and
- HAZCOM.

Department Safety Committee Members

Each ASU employee is responsible for the following:

- Know the location and use the information provided in the MSDS;
- Ensure proper labeling of hazardous chemicals;
- Attend initial and follow-up hazard communication training as required;
- Report potential hazards, accidents and near-misses to supervisor immediately; and
- Assist supervisor in implementing recommendations for improving safety; and

Vendors, Contractors and Visitors

Each Vendor, Contractor and/or Visitor is responsible for the following:

- Notifying their ASU contact of their activities and reviewing any information provided related to Hazardous Chemicals in use at ASU;
- Providing MSDS and related hazard information to their ASU contact prior to utilizing any Hazard Chemical associated with their activities at ASU;
- Complying with all applicable EH&S regulations and ASU Policies related to their activities related to their purchase order, contract or any other agreement with ASU; and

- Informing each ASU department of any hazardous chemical(s) they may be using during the performance of their work.

Identification of Hazardous Materials

The responsibility for determining whether a chemical is hazardous lies with the chemical manufacturer or importer of a chemical. End-users and/or supervisors may rely on the evaluation received from these suppliers, in the form of MSDSs and warning labels. A chemical inventory shall include a list of chemicals, including compressed gas cylinders, used in the workplace covered by HAZCOM and can be prepared by documenting the names of chemicals that have a warning label indicating a potential hazard (e.g., 4 flammable or corrosive). In addition to chemicals in containers, other substances generated in work operations such as welding fumes and some dusts shall also be listed in the inventory.

All identified chemicals must have a corresponding MSDS available in a binder or electronically. The binder or electronic file must be identified with the acronym MSDS on the spine or file name or folder and be located in an area accessible to all employees at all times, regardless of work shift.

Inventory of Hazardous Materials

Departments that employ individuals who may be exposed to hazardous chemicals in the course of their job duties shall prepare a chemical inventory. The designated department shall maintain a current chemical inventory. A copy of the prepared chemical inventory shall be forwarded to Environmental Health & Safety at and updated at least annually. Environmental Health & Safety shall compile and maintain the Master Chemical Inventory for ASU. An example hazardous chemical inventory form can be found at

http://www.asu.edu/uagc/EHS/forms/asu_chemical_inventory-template.xls

Chemical inventories shall be placed with a copy of the written Hazard Communication Program and stored in the Material Safety Data Sheet binder(s). This information shall be accessible to all employees at all times. A copy of the chemical inventory is to be forwarded to EH&S and updated at least annually.

The following list identifies, but is not limited to, some types of potentially hazardous chemical that may be present in the workplace:

Acids
Adhesives
Aerosols
Battery Fluids
Bleach
Catalysts
Caustics
Cleaning Agents
Coatings
Compresses Gases

Degreasing Agents
Dusts
Etching Agents
Flammables
Foaming Resins
Fungicides
Gasoline
Glues
Greases
Herbicides
Industrial Oils
Inks
Insecticides
Janitorial Supplies
Kerosene
Lacquers
Lye
Paints
Pesticides
Plastics
Process Chemicals
Resins
Sealers
Shellacs
Solders
Solvents
Surfactants
Thinners
Varnishes
Water Treatment Chemicals 5

Department Labels and Other Warnings

Department supervisors are responsible for identifying hazardous chemicals in the workplace and effectively communicating information available from the manufacturers MSDS and labels or other cautionary warnings to employees.

All hazardous chemical containers in the work place must clearly identify, in English, the hazardous contents of the container. The supervisor has the responsibility to ensure that all employees under their supervision are aware of the requirements to have all hazardous chemical container labels affixed, legible and to contain the appropriate information and to enforce this requirement.

All secondary container(s) shall use either the NFPA or the Hazardous Materials Identification System (HMIS) label or manufacturers label of the appropriate size for the container. Supervisors will ensure that appropriate labels are available. If a manufacturer's label is unavailable, the appropriate information should be copied from the MSDS to the blank HMIS label (refer to Appendix C). If it is not practical to label a container, the proper chemical hazard information may be placed on a sign near the container, which is clearly visible to employees. Containers of hazardous chemicals at ASU must be received with a label that provides the appropriate identification and the hazards associated with the chemical. The label is to be supplied by the manufacturer, importer or distributor of the chemical. If the container arrives without a label, an HMIS label will be affixed to the container as outlined:

- Identity of chemicals (chemical or common name on the Material Safety Data Sheet);
- Name and address of the chemical manufacturer or distributor; and
- Appropriate hazard warning (designated by the chemical manufacturer or distributor).

Labels will not be removed unless the container is immediately re-labeled or the chemical in the container is emptied, cleaned and/or a new type of chemical is placed in the container, and the chemical container is re-labeled with the identity of the new chemical.

The HMIS labeling system operates on the same principle as the NFPA diamond. Blue indicates health hazard, red indicates flammability, yellow indicates reactivity, and special information (such as what personal protective equipment to wear) will be provided in the white section. It also uses a numerical system from 0-4 to indicate the severity of the hazard. Refer to the chart in Appendix C as a reference.

It should be noted that while the NFPA 704 Labeling system and the HMIS labeling system are similar but are not the same. Laboratories registered with EH&S is posted with an NFPA 704 label (referred to as an NFPA Diamond) as are chemical storage containers and chemical storage areas as required by local fire codes. When transferring information from the MSDS make certain which rating is being provide, because many manufacturers may use the NFPA rating or both ratings.

Material Safety Data Sheets

Chemical manufacturers and distributors are required by OSHA to provide Material Safety Data Sheets (MSDS) to consumers. A MSDS is provided to ensure the end-user of chemical products is informed of the hazards associated with the use of the chemical and what safety precautions should be utilized. The same MSDS may be used for several chemicals if they have similar hazards and contents. Updated or new MSDSs will be distributed immediately upon receipt. Each department must maintain a complete and accurate MSDS for each chemical used in the workplace upon purchase of a chemical. When new and significant information becomes available concerning the hazards of a chemical or improved method of protection for employees, the chemical manufacturers, importers, or distributors must provide a MSDS with the updated information with the next shipment or within three months to the end-users.

If the manufacturer, importer or distributor fails to send a MSDS with a shipment labeled as a hazardous chemical, the department must obtain one from the chemical manufacturer, importer or distributor as soon as possible. Similarly, if the MSDS is incomplete or unclear, the department should contact the manufacturer, importer or distributor to get clarification or obtain the missing information (see page 10 for sample letters requesting a MSDS, or additional information for a MSDS). No chemical shall be used by any ASU employee unless a current MSDS is available.

MSDSs will usually be made up of at least ten (10) sections if they comply with the **Globally Harmonized System of Classification and Labeling of Chemicals** or **GHS** which is an internationally agreed upon system set to replace the various different classification and labeling standards used in different countries. The GHS will use consistent criteria for classification and labeling on a global level or the voluntary American National Standards Institute (ANSI) standard Z400.1, with each section describing a specific detail about the product. There may be up to 6 additional sections if information about a product for these sections is available. (Note: currently there is no mandated standard format for an MSDS; the format may vary depending on the manufacturer, importer, or distributor):

- Chemical product and company identification;
- Composition and/or information on hazardous ingredients;
- Hazards identification, including emergency overview;
- First aid measures;
- Fire-fighting measures;
- Accidental release measures;
- Handling and storage;
- Exposure controls and personal protection;
- Physical and chemical properties; and
- Stability and reactivity.

Additional sections may include information on toxicological, ecological, transport, disposal and regulatory information as well as any other information not covered in the above-mentioned sections.

A MSDS binder will be located in designated work areas. It is recommended that a brightly colored (red) binder with the acronym MSDS on the spine be used. All employees shall be informed of the location of the binder. In addition, the binder will be readily available to all employees at all times regardless of their work shift. The Department will forward new or updated MSDSs to the area Supervisor. The Coordinator will request additional information if the MSDS is unclear. The supervisor will maintain the MSDS in alphabetical order. If the MSDS replaces an older edition, the replacement will be kept in the back of the binder or forward it to the Department Supervisor to file in an archive MSDS binder.

Copies of the MSDS will be made available for any designated representative of the employee, or OSHA officer upon their request. The department and/or supervisor will be notified if a non-employee requests a copy of the MSDS.

Maintenance of Material Safety Data Sheets

Each department will maintain a department MSDS master chemical file. Upon receipt of a new MSDS, the Department will update the master file. The Department will assist in performing an annual MSDS audit to ensure MSDSs for all chemicals listed in the chemical inventory are available in the workplace.

Supervisors will maintain the MSDS file and ensure the MSDS file is available for all employees to review at any time, all new MSDS received are filed, and that employees are aware of any new chemical introduced to the workplace. Supervisors will notify the Department if a listed chemical is no longer used or stored and will archive the MSDS from the file and update the chemical inventory.

Resources for Obtaining MSDSs

MSDSs can be obtained by contacting the vendor selling the product or the product manufacturer. An example of a letter that can be sent to a manufacturer to request an MSDS follows. Most MSDS can be found by a simple web search such as google. If you have difficulty locating an MSDS please contact EH&S at EHS@asu.edu or (480) 965-6219.

Sample Letter Requesting a MSDS

Blitz Manufacturing Company 1923 Oak Grove Lane Springfield, Massachusetts 02110

Dear Sir/Madam:

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR1910.1200) requires employers be provided Material Safety Data Sheets (MSDS) for all hazardous substances used in their facility, and to make these MSDS available to employees potentially exposed to these hazardous substances.

Therefore, we request a copy of the MSDS for your chemical product listed as (give product and/or chemical name here). We did not receive an MSDS with the initial shipment of (Blitz Solvent 90) we received on (date). We also request any additional information, supplemental

MSDS, or any other relevant data your company or supplier has concerning the safety and health aspects of this chemical product.

Please consider this letter a standing request to your company for any information concerning the safety and health aspects of using the chemical product that may be learned in the future. Delays in receiving the MSDS information will prevent use of your chemical product in our department. Please send the requested information to John Smith, Department, XYZ Department, Arizona State University, Tempe, Arizona 85287.

Please be advised, if we do not receive the MSDS for the above chemical by (date), we may have to notify OSHA of our inability to obtain this information. Your cooperation will be appreciated. Thank you for your timely response to this request.

Sincerely,
John Smith Department

If an MSDS does not contain the information required a follow up letter should be sent to the chemical manufacturer. An example of a follow up letter follows.

Sample Letter Requesting Additional MSDS Information

ACE Chemical Company, Incorporated 214 Capitol Drive Richmond, Virginia 23230

Dear Mr. Winston:

In an effort to comply with the Occupational Safety and Health Administration's Hazard Communication Standard, my department is seeking additional information on a chemical product manufactured by your company. The MSDS forwarded to our department appear to be deficient in the following areas:

1. Clear-VU 210 - no health effects listed
2. Clean-up 34 (Solvent) - no physical hazard listed

In order to provide adequate training for our employees and comply with the Standard, we must have completed MSDS, particularly with reference to the above-identified items. Please send the information to John Smith, Department, XYZ Department, Arizona State University, Tempe, Arizona 85287.

Thank you for your assistance in this matter.

Sincerely,
John Smith Department 10

Employee Information and Training

Departments shall have a written training and information program for all affected employees or ensure participation of affected employees in required EH&S training programs. Employee training shall be provided when employees are initially hired and when a new chemical hazard is introduced into the workplace. The workplace supervisor will ensure that employees are trained in the specific topics covered in the HAZCOM and provide further training relative to the specific hazardous chemicals employees will use in the performance of their duties.

EH&S provides training sessions at regular intervals during each semester through Human Resources Staff Development. Additionally, EH&S provides specific training for individual departments or principal investigators upon request.

At a minimum, employees shall be informed of:

- Requirements of OSHA's Hazard Communication Standard;
- The physical and health hazards of chemicals used in their workplace;
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace;
- How to adequately protect themselves to minimize their exposure;
- Location of the chemical inventory and MSDS binder in the workplace;
- Details of ASU's HAZCOM, including an explanation of the labeling system and the MSDS and how employees can obtain and use the appropriate hazard information; and
- Location and availability of the written HAZCOM.

Trade Secrets

A trade secret allows a manufacturer to maintain their market advantage over competitors by designating certain chemical formulations as being proprietary. For example, a trade secret may be a confidential device, pattern, information or chemical formulation. Chemical industry trade secrets are generally formulas, process data, or a "specific chemical identity." The latter is the type of trade secret information referred to in the Hazard Communication Standard. The term "a trade secret" includes the chemical name, the Chemical Abstracts Services (CAS) Registry Number, or any other specific information that reveals the chemical's precise designation. It does not include common names.

The standard maintains a balance between the need to protect exposed employees and the employer's need to maintain confidentiality of a legitimate trade secret. This is achieved by providing for limited disclosure to health professionals who are providing medical or other occupational health services to exposed employees, employees and their designated representatives, under specified conditions of need and confidentiality.

The chemical manufacturer, importer, or employer must immediately disclose the specific chemical identity of the hazardous chemical to a treating physician or nurse when the information is needed for proper emergency or first-aid treatment. As soon as circumstances permit, the chemical manufacturer, importer, or employer may obtain a written statement of need and a confidentiality agreement.

Under the contingency described here, the treating physician or nurse has the ultimate responsibility for determining that a medical emergency exists. At the time of the emergency, the professional judgment of the physician or nurse regarding the situation must form the basis for triggering the immediate disclosure requirement. Because the chemical manufacturer, importer, or employer can demand a written statement of need and a confidentiality agreement to be completed after the emergency is abated, further disclosure of the trade secret can be effectively controlled.

In non-emergency situations, chemical manufacturers, importers, or employers must disclose the withheld specific chemical identity to health professionals providing medical or other occupational health services

to exposed employees, and to employees and their designated representatives, if certain conditions are met.

In this context, "health professionals" include physicians, occupational health nurses, industrial hygienists, toxicologists, or epidemiologist.

The request for information must be in writing and must describe with reasonable detail the medical or occupational health need for the information. The request will be considered if the information will be used for one or more of the following activities:

- Assess the hazards of the chemicals to which employees will be exposed;
- Conduct or assess sampling of the work place atmosphere to determine employee exposure levels;
- Conduct pre-assignment or periodic medical surveillance of exposed employees;
- Provide medical treatment to exposed employees;
- Select or assess appropriate personal protective equipment for exposed employees;
- Design or assess engineering controls or other protective measures for exposed employees; and
- Conduct studies to determine the health effects of exposure.

Health professionals, employees, or their designated representatives must specify why alternative information is insufficient. The request for information must explain in detail why disclosure of the specific chemical identity is essential, and include the procedures to be used to protect the confidentiality of the information. It must not include an agreement not to use the information for any purpose other than the stated need, nor shall the information be release to unauthorized individuals and/or entities under any circumstances.

Emergency Procedures

Each department must develop emergency procedures specific to their operation(s) and all affected employees must be aware of these procedures. This Program should include (but not limited to) actions or contingencies for:

- Evacuations due to fires, chemical spills, and other situations;
- First aid;
- Shut down, lock out during evacuations; and
- Location of emergency equipment (fire extinguishers, fire alarm pull stations, showers, eyewashes, etc.).

Protocol for handling emergencies is outlined in the ASU Emergency Response Guide available at http://www.asu.edu/uagc/emergency/response_guide.html.

Faculty, staff, and students who discover or are involved in a hazardous chemical emergency are responsible for taking appropriate action to protect themselves and the university community by notifying the appropriate authorities and following established protocol outlined in the ASU

Emergency Response Guide. The Emergency Response Guide must be available in areas that have the potential for chemical emergencies, and be posted in a conspicuous area. The Emergency Response Guide is available on the EH&S website at http://uabf.asu.edu/ehs_services or a copy can be obtained by calling EH&S at (480) 965-6219.

Hazard Communication and Outside Contractors

Notification Procedure

Each department is responsible for notifying all vendors and contractors working in locations under their control of hazardous chemicals that are in the area, making MSDS available to them and obtaining written acknowledgment of receipt of this information. To accomplish this each department should provide the following information to vendors and contractors working in areas under their control:

- A list of all chemicals located in the work area where the outside contractor or vendor will be performing the work; • Provide MSDS(s) upon request to the contractor for all listed chemicals; and
- Obtain a written documentation of the contractor's or vendor's acknowledgement that the information was provided or made available prior to the initiation of the contractor's work.

Prior to the initiation of work, outside contractors are to provide the area department and/or unit with an MSDS for each chemical being used during the work project and shall maintain a copy for each chemical being used at the work site for the entire duration the chemical is in use.

Facilities Programming and Construction will:

- Forward the contractor MSDS(s) to the area supervisor and/or department and Environmental Health & Safety with information regarding which work area(s) will be affected;
- Establish a file for the contractor MSDS(s) and forward a copy to each area supervisor and/or department that may be affected by the project;
- Supervisors and/or department representatives shall review the contractor MSDS(s) with department and/or unit employees;
- Once the contractor completes the project, ensure contractors remove all project related chemicals from the work area; department representative are no longer kept on location; and
- Notify the department supervisor and/or department representative that the contractor MSDS(s) from the area file or location have been or may be removed.

Accident Reporting

Employees shall report accidents and injuries to their supervisor immediately. Supervisors shall submit a report to Environmental Health & Safety for any accident, injury or near miss within 72 hours as identified in EHS 115: Incident Reporting and Investigation available at <http://www.asu.edu/aad/manuals/ehs/ehs115.html>. All employees will be free from any reprisals for reporting accidents. Accident reporting will assist Environmental Health & Safety in providing corrective procedures to avoid a recurrence of the accident.

Audits

Departments, departments, managers and supervisors are responsible for establishing, implementing and maintaining a system of communication to relay health and safety information to employees. Resources available through ASU's EH&S department should be used whenever available but other sources may be used if approved through EH&S.

Supervisors and safety committees may conduct regular, periodic audits of the workplace to evaluate work practices and identify potential hazards. The frequency of audits should be determined by the level of risk associated with a department's specific operation or process. Audits should be conducted annually or whenever there is a change in the type of hazardous chemicals, processes, procedures, or equipment used which may alter the hazards posed to employees. The department, safety committee and supervisors should evaluate the effectiveness of the HAZCOM program for their specific work area. For more information or training associated with conducting audits or other assessments under this program, please contact EH&S at EHS@asu.edu.

Environmental Health & Safety will conduct periodic inspections, as necessary, determining individual department compliance with HAZCOM. Inspections may be performed in conjunction with the department's periodic audit by the department representative and/or safety committee members or compliance officers. Inspection reports will document opportunities for improvement and be directed to the Department Dean, Director, Chair or designee.

Corrective action is to be completed in a reasonable amount of time and documented. Improvement opportunities related to training, labeling or maintenance of MSDS should be completed within 30 days of the finding.

Audit reports shall include the date the audit was conducted and the name of the employee(s) conducting the audit.

Program Evaluation

Periodic program evaluations will be conducted by EH&S. Program evaluations will assess the effectiveness of the systems in place to implement the requirements of this program.

Record Keeping

Documentation and records associated with this program shall be maintained as required by the Hazard Communication Standard, 29 CFR § 1910.1200. Environmental Health & Safety, individual departments, supervisors, and other department representatives shall maintain records as indicated below.

- Each department shall maintain the most recent Chemical Inventories associated with their operations
- Each department shall maintain MSDS including archives of hazardous chemicals no longer in use.
- EH&S shall maintain copies of employee training records for any training program presented by EH&S.
- Departments who present their own training under this program shall forward copies of training records to EH&S for long term maintenance.

Records shall be made available to employees and/or their representatives upon request.

Appendix A

Definitions

ACGIH: American Conference of Governmental Industrial Hygienists; an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits (see "TLV") for hundreds of chemical substances and physical agents.

Acute: Severe, often dangerous conditions in which relatively rapid changes occur.

Acute Exposure: A single, brief exposure to toxic substances. Effects (i.e., adverse effects on the human body) if any are evident soon after the exposure, could come quickly to a crisis.

Alloys: A mixture of metal (such as brass), in some cases a metal and a non-metal.

Ambient Temperature: Temperature of the immediate surroundings.

Appearance/Odor: The color, physical state at room temperature, size of particles, characteristics of the material. Odor is described in comparison to common familiar "smells." Threshold refers to the concentration required in the air before vapors are detected or recognized.

Asphyxiant: A chemical (gas or vapor) that can cause death or unconsciousness by suffocation. Simple asphyxiants such as nitrogen, either use up or displace oxygen in the air. They become especially dangerous in confined or enclosed spaces. Chemical asphyxiant, such as carbon monoxide and hydrogen sulfide, interfere with the body's ability to absorb or transport oxygen to the tissues.

Aspiration Hazard: The danger of drawing a fluid into the lungs and causing an inflammatory response to occur.

Autoignition Temperature: Lowest temperature at which a flammable gas or vapor-air mixture will ignite from its own heat source or other contacted heat source.

Boiling Point: Temperature at which vapor pressure of a liquid equals atmospheric pressure.

C.A.S. Number: The number assigned to chemicals or products by the Chemical Abstracts Service.

Carcinogen: A substance or agent capable of causing or producing cancer.

Catalyst: A substance which changes the speed of a chemical reaction but undergoes no permanent change itself. An example of a catalyst is the platinum used in automotive catalytic converters on the exhaust system.

Chronic Effect: An adverse effect on a human or animal. Symptoms develop slowly over a long period of time or recur frequently.

Combustible: A substance capable of fueling a fire. Also a term used to classify certain liquids on the basis of their flashpoints. Also see "flammable".

Compressed Gas: A gas under pressure which is greater than that of the atmosphere. An example is the air in automobile tires.

Corrosive Material: As defined by the Department of Transportation (DOT), a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact; or in the cases of leakage from its packaging, a liquid that has a severe corrosion rate on steel.

Cutaneous: Pertaining to or affecting the skin.

Decomposition: Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay or other processes) into simpler substances.

Dermal: Pertaining to or affecting the skin.

Dyspnea: Shortness of breath, difficult or labored breathing.

Erythema: A reddening of the skin. 16

Evaporation Rate: The ratio of time required to evaporate the same volume of a reference liquid (ether). The higher the ratio, the slower the evaporation rate.

Explosive: A chemical that causes a sudden release of pressure, gas and heat when subjected to shock, pressure, or high temperature.

Exposure Limit: Limit set to minimize occupational exposure to a hazardous substance. Recommended occupational exposure limits used are American Council of Governmental Industrial Hygienists' Threshold Limit Values (TLV) and Occupational Safety and Health Administration Permissible Exposure Limits (PEL).

Extinguishing Agents (Methods): Agent(s) suitable for controlling or putting out a fire, when properly applied.

Flammable: A material which is easily ignited and burns with extreme rapidity.

Flammable Limits: The range of a vapor/gas concentration in air that will burn or explode if an ignition source is present.

Flash Point: The minimum temperature at which a liquid gives off sufficient vapor to form, with air, an ignitable mixture.

General Exhaust: Removal of contaminated air from a large area by an air circulation or exchange system.

Generic Substance: A substance identified by its general chemical name and/or formula.

Hazard Communication Program (HAZCOM): The written program employers must develop and use which specifies employee training for routine and emergency use of all potentially hazardous chemicals in the work place, details pertaining to chemical labels, storage and Material Safety Data Sheets and a complete list of all hazardous chemicals in the work place.

Hazardous Chemical: Any chemical which poses a physical hazard or a health hazard. This is determined by information in the MSDS.

Health Hazard: Any chemical for which there is at least one scientific study that shows it may cause acute or chronic health symptoms. This includes chemicals which are carcinogens, toxic or highly toxic, irritants, corrosives, sensitizers, or chemicals that effect target organs including the lungs, kidneys, nervous system, pulmonary system, reproductive system, skin and eyes.

Highly Toxic:

- A chemical which has been found through testing of laboratory animals to cause death when exposed at certain levels.
- A chemical is highly toxic to ingest if it has a median lethal dose (LD50) of less than 50 mg/kg. This means that 50 percent of the test animals (rats) died when given an oral dosage of 50 milligrams for each kilogram of body weight.
- A chemical is highly toxic to touch if it has an (LD50) rating of less than 200 mg/kg, meaning that 50 percent of the lab animals (rabbits) die after having continuous skin contact at that dosage for 24 hours or less.
- A chemical is highly toxic to breathe if it has a (LC50) rating of less than 200 PPM for gas or vapor and a 2 mg/L for dust, fume, or mist when exposed for an hour or less.

Ignition Source: Anything that provides heat, sparks, or flame sufficient to cause combustion/explosion.

Incompatible: Materials which could cause dangerous reactions from direct contact with one another are described as incompatible.

Ingestion: The drawing of a substance into the body (lungs) through the nose, mouth, and breathing passages, in the form of a gas, vapor, fume, mist, or dust. 17

Irritant: A substance which will cause an inflammatory response or reaction of the eye, skin, or respiratory system, following single or multiple exposures.

LC50: Lethal Concentration 50; a single dose of material which on the basis of laboratory tests is expected to kill 50% of a group of test animals when administered by mouth (oral) or applied to the skin (dermal or cutaneous).

LD50: Lethal Dose 50; a single dose of material which on the basis of laboratory tests is expected to kill 50% of a group of test animals. The material may be administered by mouth (oral) or applied to the skin (dermal or cutaneous).

LEL (Lower Explosive Limit): The lowest concentration of a gas or vapor in the air that can produce ignition or explosion.

Local Exhaust: A system for capturing and exhausting contaminants from the air at the point where the contaminants (gases, particulates) are released. Not to be confused with "general exhaust".

MSDS (Material Safety Data Sheet): Written or printed material about a chemical that specifies its hazards, safe use and other information. It is prepared by the chemical manufacturer, and is required by federal law.

Mechanical Exhaust: A powered device, such as a motor-driven fan or air/street venturi tube, for exhausting contaminants from a work place, vessel, or enclosure.

Narcosis: Stupor or unconsciousness caused by exposure to a chemical.

Neutralize: To render chemically neutral or harmless; neither acid nor base; to counteract the activity or effect of; the addition of a base (sodium hydroxide) to an acid (hydrochloric acid) results in water and a salt (sodium chloride), thus the acid has been "neutralized" or rendered harmless.

Odor Threshold: The minimum concentration of an airborne, toxic substance whose odor is detectable to the average individual. Depending on whether it is above or below substances TLV, it may be indicative of whether additional ventilation is required.

Oral: Of, through, pertaining to, or affecting the mouth.

OSHA: Occupational Safety and Health Administration of the U.S. Department of Labor; a federal agency with safety and health enforcement authority for most of U.S. industry and business.

Oxidizer: Department of Transportation defines oxidizer or oxidizing material as a substance that yields oxygen readily to stimulate the combustion (oxidation) of organic matter. Chlorate (ClO_3), permanganate (MnO_4) and nitrate (NO_3) compounds are examples of oxidizers.

PEL (Permissible Exposure Limit): An exposure limit established by OSHA's regulatory authority. May be a time weighted average (TWA) limit or a maximum concentration exposure limit.

Personal Protective Equipment (PPE): Equipment designed to protect worker health and safety, e.g., chemical resistant gloves, safety glasses or goggles, face shields, etc.

PPM (parts per million): The unit for measuring the concentration of a gas or vapor in contaminated air. Also used to indicate the concentration of a particular substance in a liquid or solid.

Physical Hazard: A chemical which is proved to be a combustible liquid, compressed gas, explosive, flammable, oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Polymerization: A chemical reaction in which a large number of relatively simple molecules combine to form a large chainlike molecule. A hazardous polymerization is a reaction which takes place at a rate which releases large amounts of energy.

Pyrophoric: A chemical which ignites spontaneously with air at 130 degrees F. or less. 18

Respiratory Protection: Devices for use in conditions exceeding set exposure levels. When properly selected, maintained and worn by the user, it will protect the users' respiratory system from exposure to airborne contaminants by inhalation.

SCBA: Self-contained breathing apparatus.

Sensitizer: A substance, which on first exposure, causes little or no reaction in man or test animals, but which on subsequent exposure(s) may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of the problem in the industrial setting, although respiratory sensitization to a few chemicals has been known to occur.

Solubility in Water: The percentage of a material (by weight) that will dissolve in water at a specific temperature.

- NEGLIGIBLE LESS THAN 0.1%
- LIGHT 0.1 TO 1.0%
- MODERATE 1 TO 10%
- APPRECIABLE MORE THAN 10%
- COMPLETE SOLUBLE IN ALL PROPORTIONS

Solvent: A substance which dissolves another substance.

Specific Gravity: The ratio of weight of volume of material to the weight of an equal volume of water usually at 60 F., otherwise specified H_2O -1.

Systemic: Spread throughout the body, affecting many or all body systems or organs, not localized in one spot or area.

TLV "Skin": This designation sometimes appears alongside a TLV of PEL. It refers to the possibility of absorption of the particular chemical through the skin and eyes. Thus, the protection of large surface areas of skin should be considered to prevent skin absorption so that the TLV is not invalidated.

Target Organ: The specific organs or body systems that sustain hazardous effects from a toxic chemical are either long or short-term. Target organs could be the liver, kidney, central nervous system or skin.

Toxic: A substance which has a median lethal dose (LD50) of 50 to 500 mg/kg for ingestion, from 200 to 1,000 mg/kg within a 24-hour period for contact and from 200 to 2,000 PPM gas or vapor for inhalation.

UEL (Upper Explosive Limit): The highest concentration of a gas or vapor in air that can produce ignition or explosion.

Unstable (Reactive): A chemical which vigorously undergoes polymerization, decomposition, or condensation via shock, pressure, or temperature.

Vapor Density: The ratio of the density of a substance's vapor to the density of another substance's vapor, usually air. A vapor density of greater than one means that the substance is heavier than air.

Vapor Pressure: The pressure exerted by vapor, in confinement, over its liquid as it accumulates at a constant temperature.

Water Reactive: A chemical which reacts with water is to form flammable gas or produce a health hazard. 19

Appendix B
29 CFR § 1910.1200
Hazard Communication

• **Part Number:**

1910

• **Part Title:**

Occupational Safety and Health Standards

• **Subpart:**

Z

• **Subpart Title:**

Toxic and Hazardous Substances

• **Standard Number:**

1910.1200

• **Title:**

Hazard Communication.

• **Appendix:**

A, B, C, D, E

1910.1200(a)

"Purpose."

1910.1200(a)(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.

1910.1200(a)(2)

1910.1200(a)(2)

This occupational safety and health standard is intended to address comprehensively the issue of evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legal 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, including lists of hazardous chemicals present; labeling of containers of chemicals in 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 a 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 program.

1910.1200(b)

"Scope and application."

1910.1200(b)(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 a hazard communication

program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required 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.)

1910.1200(b)(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.

1910.1200(b)(3)

This section applies to laboratories only as follows:

1910.1200(b)(3)(i)

Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed 21 or defaced;

..1910.1200(b)(3)(ii)

1910.1200(b)(3)(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 work shift to laboratory employees when they are in their work areas;

1910.1200(b)(3)(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,

1910.1200(b)(3)(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.

1910.1200(b)(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:

1910.1200(b)(4)(i)

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

..1910.1200(b)(4)(ii)

1910.1200(b)(4)(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,

1910.1200(b)(4)(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.

1910.1200(b)(5)

This section does not require labeling of the following chemicals:

1910.1200(b)(5)(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;

1910.1200(b)(5)(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;

..1910.1200(b)(5)(iii)

1910.1200(b)(5)(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;

1910.1200(b)(5)(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;

1910.1200(b)(5)(v)

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, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission; and,

1910.1200(b)(5)(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.

..1910.1200(b)(6)

1910.1200(b)(6)

This section does not apply to:

1910.1200(b)(6)(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;

1910.1200(b)(6)(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 the hazardous substance is the focus of remedial or removal action being conducted under CERCLA in accordance with the Environmental Protection Agency regulations.

1910.1200(b)(6)(iii)

Tobacco or tobacco products;

1910.1200(b)(6)(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);

1910.1200(b)(6)(v)

Articles (as that term is defined in paragraph (c) of this section);

1910.1200(b)(6)(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;

..1910.1200(b)(6)(vii)

1910.1200(b)(6)(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);

1910.1200(b)(6)(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; 22 23

1910.1200(b)(6)(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;

1910.1200(b)(6)(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;

1910.1200(b)(6)(xi)

Ionizing and nonionizing radiation; and,

1910.1200(b)(6)(xii)

Biological hazards.

1910.1200(c)

"Definitions."

"Article" means a manufactured item other than a fluid or particle: (i) 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, U.S. 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 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flashpoints of 200 deg. F (93.3 deg. 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 deg. F (21.1 deg. C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F (54.4 deg. C) regardless of the pressure at 70 deg. F (21.1 deg. C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F (37.8 deg. 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 which an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified 24 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, U.S. 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 hazards 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 deg. F (37.8 deg. C), except any mixture having components with flashpoints of 100 deg. F (37.8 deg. 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 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 deg. F (37.8 deg. 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 deg. F (37.8 deg. 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. 25

"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 and health hazard(s), 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" 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. 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 deg. F (54.4 deg. 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. 26

"Use" means to package, handle, react, emit, extract, generate as a 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.

..1910.1200(d)

1910.1200(d)

"Hazard determination."

1910.1200(d)(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 the chemical manufacturer or importer for the chemical to satisfy this requirement.

1910.1200(d)(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.

1910.1200(d)(3)

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

1910.1200(d)(3)(i)

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

..1910.1200(d)(3)(ii)

1910.1200(d)(3)(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.

1910.1200(d)(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:

1910.1200(d)(4)(i)

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

1910.1200(d)(4)(ii)

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

1910.1200(d)(4)(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.

1910.1200(d)(5)

The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows: 27

1910.1200(d)(5)(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;

..1910.1200(d)(5)(ii)

1910.1200(d)(5)(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;

1910.1200(d)(5)(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,

1910.1200(d)(5)(iv)

If the chemical manufacturer, importer, or employer has evidence to indicate that a 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.

1910.1200(d)(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.

..1910.1200(e)

1910.1200(e)

"Written hazard communication program."

1910.1200(e)(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:

1910.1200(e)(1)(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 individual work areas); and,

1910.1200(e)(1)(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.

1910.1200(e)(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:

1910.1200(e)(2)(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;

..1910.1200(e)(2)(ii) 28

1910.1200(e)(2)(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,

1910.1200(e)(2)(iii)

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

1910.1200(e)(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).

1910.1200(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 1910.1020 (e).

1910.1200(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.

1910.1200(f)

"Labels and other forms of warning."

1910.1200(f)(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:

..1910.1200(f)(1)(i)

1910.1200(f)(1)(i)

Identity of the hazardous chemical(s);

1910.1200(f)(1)(ii)

Appropriate hazard warnings; and

1910.1200(f)(1)(iii)

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

1910.1200(f)(2)

1910.1200(f)(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;

1910.1200(f)(2)(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,

1910.1200(f)(2)(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).

..1910.1200(f)(3)

1910.1200(f)(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 that Act by the Department of Transportation.

1910.1200(f)(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.

1910.1200(f)(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:

1910.1200(f)(5)(i)

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

1910.1200(f)(5)(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.

1910.1200(f)(6)

1910.1200(f)(6)

The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials 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 materials shall be readily accessible to the employees in their work area throughout each work shift.

1910.1200(f)(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.

1910.1200(f)(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.

1910.1200(f)(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 presented in English as well.

1910.1200(f)(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.

1910.1200(f)(11)

1910.1200(f)(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 aware 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.

1910.1200(g)

"Material safety data sheets."

1910.1200(g)(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.

1910.1200(g)(2) 30 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:

1910.1200(g)(2)(i)

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

1910.1200(g)(2)(i)(A)

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

1910.1200(g)(2)(i)(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,

1910.1200(g)(2)(i)(C)

If the hazardous chemical is a mixture which has not been tested as a whole:

..1910.1200(g)(2)(i)(C)(1)

1910.1200(g)(2)(i)(C)(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,

1910.1200(g)(2)(i)(C)(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 ingredient(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,

1910.1200(g)(2)(i)(C)(3)

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

1910.1200(g)(2)(ii)

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

1910.1200(g)(2)(iii)

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

1910.1200(g)(2)(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;

1910.1200(g)(2)(v)

The primary route(s) of entry;

..1910.1200(g)(2)(vi)

1910.1200(g)(2)(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;

1910.1200(g)(2)(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;

1910.1200(g)(2)(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; 31

1910.1200(g)(2)(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;

1910.1200(g)(2)(x)

Emergency and first aid procedures;

1910.1200(g)(2)(xi)

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

..1910.1200(g)(2)(xii)

1910.1200(g)(2)(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.

1910.1200(g)(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.

1910.1200(g)(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.

1910.1200(g)(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.

..1910.1200(g)(6)

1910.1200(g)(6)

1910.1200(g)(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;

1910.1200(g)(6)(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;

1910.1200(g)(6)(iii)

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

1910.1200(g)(6)(iv)

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

1910.1200(g)(7)

1910.1200(g)(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; 32

1910.1200(g)(7)(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;

..1910.1200(g)(7)(iii)

1910.1200(g)(7)(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;

1910.1200(g)(7)(iv)

Wholesale distributors selling hazardous chemicals to employers over-the-counter may also 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;

1910.1200(g)(7)(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;

1910.1200(g)(7)(vi)

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

1910.1200(g)(7)(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.

..1910.1200(g)(8)

1910.1200(g)(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.)

1910.1200(g)(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.

1910.1200(g)(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 in 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 in their work area(s).

1910.1200(g)(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 1910.1020(e). The Director shall also be given access to material safety data sheets in the same manner.

..1910.1200(h)

1910.1200(h) 33

"Employee information and training."

1910.1200(h)(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.

1910.1200(h)(2)

"Information." Employees shall be informed of:

1910.1200(h)(2)(i)

The requirements of this section;

1910.1200(h)(2)(ii)

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

1910.1200(h)(2)(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.

1910.1200(h)(3)

"Training." Employee training shall include at least:

1910.1200(h)(3)(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.);

1910.1200(h)(3)(ii)

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

1910.1200(h)(3)(iii)

1910.1200(h)(3)(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,

1910.1200(h)(3)(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.

1910.1200(i)

"Trade secrets."

1910.1200(i)(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:

1910.1200(i)(1)(i)

The claim that the information withheld is a trade secret can be supported;

1910.1200(i)(1)(ii)

Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

1910.1200(i)(1)(iii)

The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,

1910.1200(i)(1)(iv)

The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph. 34

..1910.1200(i)(2)

1910.1200(i)(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.

1910.1200(i)(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 (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

1910.1200(i)(3)(i)

The request is in writing;

1910.1200(i)(3)(ii)

The request describes with reasonable detail one or more of the following occupational health needs for the information:

1910.1200(i)(3)(ii)(A)

To assess the hazards of the chemicals to which employees will be exposed;

1910.1200(i)(3)(ii)(B)

To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

1910.1200(i)(3)(ii)(C)

To conduct pre-assignment or periodic medical surveillance of exposed employees;

1910.1200(i)(3)(ii)(D)

To provide medical treatment to exposed employees;

..1910.1200(i)(3)(ii)(E)

1910.1200(i)(3)(ii)(E)

To select or assess appropriate personal protective equipment for exposed employees;

1910.1200(i)(3)(ii)(F)

To design or assess engineering controls or other protective measures for exposed employees; and,

1910.1200(i)(3)(ii)(G)

To conduct studies to determine the health effects of exposure.

1910.1200(i)(3)(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:

1910.1200(i)(3)(iii)(A)

The properties and effects of the chemical;

1910.1200(i)(3)(iii)(B)

Measures for controlling workers' exposure to the chemical;

1910.1200(i)(3)(iii)(C)

Methods of monitoring and analyzing worker exposure to the chemical; and,

1910.1200(i)(3)(iii)(D)

Methods of diagnosing and treating harmful exposures to the chemical;

1910.1200(i)(3)(iv)

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

..1910.1200(i)(3)(v) 351910.1200(i)(3)(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 the health need(s) asserted and agree not to release the information under any circumstances 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.

1910.1200(i)(4)

The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

1910.1200(i)(4)(i)

May restrict the use of the information to the health purposes indicated in the written statement of need;

1910.1200(i)(4)(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,

1910.1200(i)(4)(iii)

May not include requirements for the posting of a penalty bond.

1910.1200(i)(5)

Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

1910.1200(i)(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.

..1910.1200(i)(7)

1910.1200(i)(7)

If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must:

1910.1200(i)(7)(i)

Be provided to the health professional, employee, or designated representative, within thirty days of the request;

1910.1200(i)(7)(ii)

Be in writing;

1910.1200(i)(7)(iii)

Include evidence to support the claim that the specific chemical identity is a trade secret;

1910.1200(i)(7)(iv)

State the specific reasons why the request is being denied; and,

1910.1200(i)(7)(v)

Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.

1910.1200(i)(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.

1910.1200(i)(9)

When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:

..1910.1200(i)(9)(i)

1910.1200(i)(9)(i)

The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret;

1910.1200(i)(9)(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,

1910.1200(i)(9)(iii)

The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.

1910.1200(i)(10)

1910.1200(i)(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.

..1910.1200(i)(10)(ii)

1910.1200(i)(10)(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 from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations 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.

1910.1200(i)(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.

1910.1200(i)(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.

1910.1200(i)(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.

..1910.1200(j)

1910.1200(j)

"Effective dates." Chemical manufacturers, importers, distributors, and employers shall be in compliance with all provisions of this section by March 11, 1994.

Note: The effective date of the clarification that the exemption of wood and wood products from the Hazard Communication standard in paragraph (b)(6)(iv) only applies to wood and wood products including lumber which will not be processed, where the manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility, and that the exemption does not apply to 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 has been stayed from March 11, 1994 to August 11, 1994. 37

[59 FR 17479, April 13, 1994; 59 FR 65947, Dec. 22, 1994; 61 FR 5507, Feb. 13, 1996] 38

Appendix C

HMIS Labeling System

Example of the HMIS Label:

Chemical Name	
CAS#	
HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
REACTIVITY	<input type="checkbox"/>
SPECIFIC	<input type="checkbox"/>

HEALTH	FLAMMABILITY	REACTIVITY
4: Deadly: even the slightest exposure to this substance would be life threatening. Only specialized protective clothing, for these materials, should be worn.	4: Flash Point Below 73°F and Boiling Point Below 100°F: this substance is very flammable, volatile or explosive depending on its state. Extreme caution should be used in handling or storing of these 3:materials.	4: May Detonate: substances that are readily capable of detonation or explosion at normal temperatures and pressures. Evacuate area if exposed to heat or fire.
3: Extreme Danger: serious injury would result from exposure to this substance. Do not expose any body surface to these materials. Full protective measures should be taken.	3: Flash Point Below 100°F: flammable, volatile or explosive under almost all normal temperature conditions. Exercise great caution in storage or handling of these materials.	3: Explosive: substances that are readily capable of detonation or explosion by a strong initiating source, such as heat, shock or water. Monitor from behind explosion-resistant barriers.
2: Dangerous: exposure to this substance would be hazardous to health. Protective measures are indicated.	2: Flash Point Below 200°F: moderately heated conditions may ignite this substance. Caution procedures should be employed in handling.	2: Unstable: violent chemical changes are possible at normal or elevated temperatures and pressures. Potentially violent or explosive reaction may occur when mixed with water. Monitor from a safe distance.
1: Slight Hazard: irritation or minor injury would result from exposure to this substance. Protective measures are indicated.	1: Flash Point Above 200°F: this substance must be preheated to ignite. Most combustible solids would be in this category.	1: Normally stable: substances that may become unstable at elevated temperatures and pressures or when mixed with water. Approach with caution.
0: No Hazard: exposure to this substance offers no significant risk to health.	0: Will Not Burn: substances that will not burn.	0: Stable: substances which will remain stable when exposed to heat, pressure or water.