



HAZARD COMMUNICATION PROGRAM

I. Purpose

- a. The purpose of this program is to ensure that the hazards of chemicals used in the workplace are evaluated, and those hazards are communicated to both employers and employees. In addition, the purpose is to minimize hazardous exposure to chemicals and to provide information to emergency personnel, as required by Tennessee Occupational Safety and Health Administration's (TOSHA) Hazard Communication Right-to-Know Standard and the Occupational Exposure to Hazardous Chemicals in the Laboratory Standard.
- b. The Hazard Communication Standard (HCS) is now aligned with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This is an update to the Hazard Communication Standard (HCS) and it will provide a common and coherent approach to classifying chemicals and communicating hazard information on labels and safety data sheets. Once implemented, the revised standard will improve the quality and consistency of hazard information in the workplace, making it safer for workers by providing easily understandable information on appropriate handling and safe use of hazardous chemicals.

II. Applicability

- a. This shall apply to all places of employment on the TTU campus where students, staff and faculty are exposed or potentially exposed to a hazardous chemical hazard(s).

III. Scope

- a. This program applies to all chemicals known to be present in the workplace such that employees can be exposed under normal conditions of use or in a foreseeable emergency.

IV. Abbreviations

CFR-Code of Federal Regulations

HMIS-Hazardous Materials Information System

OSHA-Occupational Safety and Health Administration

SDS- Safety Data Sheets

NFPA-National Fire Protection Association

PPE-Personal Protective Equipment

TOSHA-Tennessee Occupational Safety and Health Administration

V. Definitions

Hazard Communication-Means through which employers inform their employees about hazards in the workplace (i.e. training and SDS), which are regulated by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

Hazard Communication does not apply to:

- Cosmetics

- Tobacco Products
- Wood or wood products
- Food or alcoholic beverages
- Drugs
- Biological hazards
- Radiation hazards
- Pesticides
- Articles, as defined in 29 CFR 1910.1200(c)

Hazardous substance – Any substance that is capable of causing an acute or chronic health condition in humans or adversely impacting the environment. Substances that are considered physical hazards (flammable substances, explosives, shock sensitive, etc.) are included in the definition of a hazardous substance. The OSHA Hazard Communication Standard, 29 CFR 1910.1200 and the OSHA Chemical Hygiene Plan 29 CFR 1910.1450 are the two main standards that define a hazardous substance.

Employee- A worker who may be exposed to hazardous chemicals under normal operating conditions, or in foreseeable emergencies.

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

Safety data sheet (SDS)- Detailed information bulletin prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first aid procedures, and control measures.

VI. Roles and Responsibilities

- a. Chemical Users (employees) shall:
 - i. Be trained before they work with, use, or handle hazardous chemicals upon initial employment and when new hazardous chemicals are introduced. Refresher training shall be conducted annually and documented appropriately for all employees.
 - ii. Stay informed about the hazards of any chemicals known to be present in their workplace, and work with those chemicals in a safe manner.
 - iii. Know how to protect themselves from adverse effects of chemicals.
 - iv. Ensure all containers are properly labeled.
 - v. Notify their supervisor as soon as possible after exposure to a hazardous chemical in the workplace.
- b. Department heads (Employers) who have employees who use hazardous chemicals under their control shall:
 - i. Ensure their non-laboratory employees are trained on the TTU Hazard Communication Standard and that they post adequate notification informing the employees of their rights under the TOSHA Hazardous Right-to-Know Law (TDEC Rule 0800-1-9).
 - ii. Ensure their laboratory employees are trained on the Occupational Exposure to Hazardous Chemicals in the laboratory standard and the TTU Hazard Communication procedure.

- iii. Determine the required personal protective equipment needed in their work area and ensure their employees are properly trained in the use of that equipment.
 - iv. Ensure that the proper PPE is made available to their employees.
 - v. Assure that all hazardous chemicals that enter or leave the workplace are properly labeled, tagged, or marked in a manner which complies with the Hazardous Chemical Right-to Know Law, and does not conflict with any other regulation pertaining to hazardous materials.
 - vi. Develop safe procedures for work in their areas, as well as written procedures for emergencies.
 - vii. Ensure that a procedure exists to review and update label information.
 - viii. Ensure that a current chemical listing (inventory) is maintained. The inventory must include the chemical name, the CAS number, and the location of where the chemical is used or stored.
 - ix. Ensure all employees have access to manufacturer specific SDS and are informed of any hazards related to chemicals they will use in their workspace. This can be done by either hard copies, or via a computer, fax, etc., as long as the employees are properly trained and there is assurance they can operate the system.
 - x. Ensure that any contractors, sub-contractors, vendors, salesperson(s), or visitors are informed of any hazardous chemicals used in the areas being visited, or where a person will be working. These people will be provided, or required to provide, personal protective equipment for their safety.
 - 1. Contractors, sub-contractors, vendors, salesperson(s), or visitors must make SDS of any hazardous chemicals that will be used on the TTU campus available for review.
 - 2. Note: Students should also be informed of the hazardous chemicals that they will handle as part of any course.
 - xi. At least once/year, the employer will forward a statement to EHS certifying that all applicable employees have been properly trained, and will maintain all training records for at least 30 years.
 - xii. Ensure that EHS is receiving hardcopies of SDS for any new chemicals ordered in their work area.
 - xiii. Make sure that specific training is provided for non-routine tasks.
 - xiv. Deal with employee exposure to hazards immediately and take steps as necessary to provide medical evaluation, monitoring or treatment.
- c. EHS shall
- i. Serve as a technical resource for questions and comments regarding the Hazard Communication Program.
 - ii. Coordinate, audit and determine compliance of TTU's Hazard Communication Program.
 - iii. Maintain a backup library Safety Data Sheets and provide ready access to SDS during an emergency (accidental release).
 - iv. Provide the local fire chief with a copy of the chemical inventory and SDS, and the names and phone numbers of the representatives who can be contacted for information during an emergency situation.
 - v. Submit necessary reports to regulatory agencies.

- d. Visitors (includes visiting professors, contractors, etc.) shall:
 - i. Be provided, or required to provide, their own safety and personal protective equipment.
 - ii. Notify TTU of the hazards of any chemicals they are delivering or using while on campus.
 - iii. Disclose health hazards and fire protection information for any trade secrets, which will be protected.
 - iv. Comply with OSHA's Hazard Communication Standard and with TTU's Hazard Communication Program.

VII. Components of HAZCOM (1910.1200)










- a. There are several components of the HAZCOM standard (1910.1200). The following is a procedure that must be followed in order to comply with the HAZCOM standard.
 - i. Chemical Inventory (Hazard Determination) 29CFR 1910.1200(d)
 - 1. An electronic or paper copy of a chemical inventory of each hazard chemical normally used or stored in the workplace must be compiled and maintained. The inventory must be updated annually, and anytime revised information is made available. Copies must be sent to EHS annually. All employees who are using or exposed to any hazardous chemicals on the inventory must have access to the inventory. If the chemical is not hazardous, then it should not be included in the chemical inventory. Do not report radiological materials, biological materials or etiological agents on your chemical inventory.
 - ii. As a minimum the following information must be included in the chemical inventory:
 - iii. Chemical name and CAS#.
 - iv. For brand name products, list the product name or common description (e.g. WD-40).
 - v. Only hazardous components in a mixture need to be listed.
 - vi. Amount (volume or mass in English or metric units).
 - vii. Location - building and room number.
 - viii. Contact person.
 - ix. Other information that may be helpful includes the concentration (percent by volume).
- b. Written Program 29CFR 1910.1200(e)
 - i. TTU's written Hazard Communication program covers how the HAZCOM program will be implemented at TTU. This program assures that all aspects of HAZCOM have been addressed. In addition, all department heads and employers are required to maintain an up-to-date Chemical Hygiene Plan, which should include a comprehensive set of basic rules and procedures for the safe use of hazardous chemicals established and documented for their specific work area. EHS has written procedures which can be used to assist department heads in writing a Chemical Hygiene Plan that is specific to their department's needs.
- c. Labels 29CFR 1910.1200(f)
 - i. All containers containing hazardous materials must be properly labeled or marked with the following required information:

- ii. Chemical and/or common name.
- iii. Appropriate hazard warnings (health, flammability and reactivity ratings) including specific organs affected (e.g., may cause lung damage, irritates skin, etc.).
- iv. Name and address of chemical manufacturer, importer, or other responsible party.
- v. Departments receiving containers without appropriate labels should take action to have the material returned or obtain a label from the manufacturer, importer or purchase a label.
- vi. Labels must be cross-referenced with the SDS and the chemical inventory entry, and must be written in English. They must be placed on a prominent area of the container. Employers can label the container in another language, but the information must be presented in English as well. EHS recommends the use of NFPA diamonds and/or GHS labels, but this is not a requirement, as long as the required information is labeled on the containers. Regardless of the type of labeling system selected, the employer must ensure that employees are fully aware of the hazards and understand the labeling system. All containers must be appropriately labeled.

d. GHS Labels






- i. Under the current Hazard Communication Standard (HCS), the label preparer must provide the identity of the chemical, and the appropriate hazard warnings. This may be done in a variety of ways, and the method to convey the information is left to the preparer. Under the revised HCS, once the hazard classification is completed, the standard specifies what information is to be provided for each hazard class and category. Labels will require the following elements:
 1. Pictogram: a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are required under the HCS.
 2. Signal words: a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards.
 3. Hazard Statement: a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
 4. Precautionary Statement: a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling of a hazardous chemical.

HCS Pictograms and Hazards

<p>Health Hazard</p>  <ul style="list-style-type: none"> ■ Carcinogen ■ Mutagenicity ■ Reproductive Toxicity ■ Respiratory Sensitizer ■ Target Organ Toxicity ■ Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> ■ Flammables ■ Pyrophorics ■ Self-Heating ■ Emits Flammable Gas ■ Self Reactives ■ Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> ■ Irritant (skin and eye) ■ Skin Sensitizer ■ Acute Toxicity ■ Narcotic Effects ■ Respiratory Tract Irritant ■ Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> ■ Gases Under Pressure 	<p>Corrosion</p>  <ul style="list-style-type: none"> ■ Skin Corrosion/Burns ■ Eye Damage ■ Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> ■ Explosives ■ Self-Reactives ■ Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> ■ Oxidizers 	<p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> ■ Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> ■ Acute Toxicity (fatal or toxic)

- e. Other labeling and signage may be required to communicate hazards in the work areas:
- i. NFPA Diamonds
 1. Each diamond represents a different hazard (see image below). A numerical rating is also provided in the blue, red, and yellow diamonds. This number indicates the severity of the hazard, with a 0 indicating no hazard and 4 indicating the most severe hazard.



 NFPA Rating Explanation Guide 					
RATING NUMBER	HEALTH HAZARD	FLAMMABILITY HAZARD	INSTABILITY HAZARD	RATING SYMBOL	SPECIAL HAZARD
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline
3	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperature or shock	ACID	Acidic
2	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	COR	Corrosive
1	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable	OX	Oxidizing
0	No hazard	Will not burn	Stable		Radioactive
					Reacts violently or explosively with water
					Reacts violently or explosively with water and oxidizing

This chart for reference only - For complete specifications consult the NFPA 704 Standard

NFPA-Chart_1 www.ComplianceSigns.com

2. These placards represent the "worst" of what is in the building, but they will not provide specific chemical names, quantities, or locations. They are

designed to give emergency personnel a general idea of the worst hazards present in a building or area.

VIII. Training and Information 29CFR 1910.1200(h)

- a. EHS shall provide information to chemical users about this program, including deadlines and format for submittal. Each person who handles or uses hazardous chemicals shall be trained before they work with, use, or handle hazardous chemicals upon initial employment and when new hazardous chemicals are introduced into their workplace. Refresher training shall be conducted annually and documented appropriately for all employees.
- b. At a minimum, the training agenda will include the following topics:
 - i. Defining the hazard communication standard, the reasons why the standard was written, and the employees' rights under the standard.
 - ii. Explanation of the existence of the written plan and how each employee has a right to review the document.
 - iii. Explaining the requirement for conducting periodic chemical inventories.
 - iv. Explaining the requirement that a Safety Data Sheet (SDS) be procured for each hazardous chemical. Advising where the sheets are kept in the unit and exactly how an employee can arrange to review the sheets. An orientation relative to the information available from SDS. 29CFR 1910.1200(g).
 - v. A discussion of the types of questions to which a properly trained employee should be able to effectively respond. Examples of the questions typically asked by a TOSHA inspector during an evaluation of a chemical hazard communication program.
 - 1. Do you work with any hazardous chemicals?
 - 2. Do you know what the Hazard Communication (Right-To-Know Law) is?
 - 3. Can the chemicals you work with hurt you?
 - 4. What could they do to you?
 - 5. What precautions have been made to protect you against the hazards of the chemicals?
 - 6. Have you had any training?
 - 7. Do you know what a SDS is?
 - 8. Do you know who to contact if you wish to review the written hazard communication plan or review an SDS?
 - 9. Do you know that if you complain to your supervisor about your working conditions that the University cannot reprimand you?
- c. Employees with potential for exposure to hazardous chemicals shall receive job-specific training in addition to that previously listed including:
 - i. Special emphasis on chemicals listed as carcinogenic.
 - ii. Methods/observations used to detect the presence or release of hazardous chemicals.
 - iii. Procedures, techniques and protective equipment to prevent exposure.
- d. The training format selected to present the orientation and review sessions will be selected such that maximum effectiveness of communication is achieved. Depending on the evaluation of the comprehension capability of the group to be trained, an appropriate combination of training modes to include audiovisuals, classroom instruction, small group discussion, one on one individualized instruction, on-the-job demonstrations, etc. will be employed.

- e. Specific training for non-routine tasks will be dictated by the situation and evaluated thoroughly in accordance with past experience and knowledge of that situation.
- f. Safety Data Sheet (SDS)
 - i. The SDS must be readily available at all times to all personnel using hazardous chemicals. If there is difficulty in obtaining an SDS, the requestor must contact the supplier and/or manufacturer for the SDS. The department head must request the SDS in writing from the manufacturer or distributor within (5) business days. If the SDS is not made available, the employee has a right to refuse to work with that hazardous chemical without retaliation. A person in the work area should be designated as the responsible person to ensure there are copies of SDS for every chemical used and stored in the workspace.
 - ii. The procedure of TTU is to maintain a file of Safety Data Sheets (SDSs) in each work unit that corresponds to the inventory of hazardous chemicals in that respective work area. SDS may be maintained in a notebook, or via electronically as long as: reliable devices are readily accessible, workers are properly trained in the use of those devices, there is an adequate backup system and the system is part of the overall Hazard Communication program. A master file of all data sheets made available will be maintained in the files of EHS. This master file of SDSs will be made available upon request during normal working hours, 8:00am to 4:00pm, M-F, by calling 372-3524. During an emergency situation and at times other than normal working hours, individuals can contact the University Police Department at 372-3234 who will have available a current listing and organizations capable of providing emergency management assistance and information. The Safety Data Sheets (SDS) are designed to provide information concerning the physical and health hazards of chemicals found in the workplace. A SDS should be covered in employee training.

IX. Recordkeeping

- a. The University's chemical inventories shall be kept for at least 30 years. These records may be kept in electronic or hard copy form. Safety data sheets must be kept indefinitely. An individual training record shall be maintained for each employee and kept for period of employment + 5 years. This should contain:
 - i. List of each chemical used or handled by the employee.
 - ii. Date of training on hazardous chemicals.
 - iii. A signature of the employee showing training on each chemical used or handled by that employee.

X. Associated Standards

OSHA: 29 CFR 1910.1200, 29 CFR 1926.59, 29 CFR 1910.1450 (Lab Standard), and TDL Rule 0800-1-9
NFPA: 45, 306, 654, 49
EPA: 40 CFR 171, 172, 173, 177, 259, 260, 261, 262, 265, 265.16, 268, 302, 302.4, 303, 311, 355, 383, 392, 395, 397, 761
TOSHA: Act of 1972 50-3-101: 50-3-919