



# West Texas A&M University™

## ACADEMIC RESEARCH ENVIRONMENTAL HEALTH AND SAFETY

### STANDARD OPERATING PROCEDURES

**SOP No. 24.01.01.W1.02AR Hazard Communication Program**

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Environmental Health and Safety at West Texas A&M University (WTAMU) is composed of two distinct but integrated environmental safety departments which report to the Vice President of Research and Compliance. Academic and Research Environmental Health and Safety (AR-EHS) is responsible for research and academic related compliance, which includes laboratory and academic research and the associated compliance committees. Fire and Life Safety (FLS-EHS) is responsible for fire related compliance and conducts fire and life safety inspections of campus buildings and assists with the testing of all fire detection and suppression systems.

Supplements [TAMUS Regulation 24.01.01](#)

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## 1. Purpose

The purpose of this written program is to advise and provide guidance on the employer/employee requirements of the Hazard Communication Standard (29 CFR 1910.1200), the Texas Hazard Communication Act (rules codified under 25 TAC 295), and the Texas A&M System Policy 24.01.01.

The requirements of the program are to:

- Identify roles regarding the university hazard communication program;
- Provide information on workplace chemical hazards;
- Provide training to employees and students regarding the use of chemical safety data sheets and chemical labels for hazard communication; and
- Address worker right to know and worker protections

## 2. Scope

The WTAMU Hazard Communication (HazCom) Program assigns responsibilities and describes procedures for providing information regarding hazardous chemicals to persons who may be exposed to hazardous chemicals during normal employment activities, during reasonably expected emergency situations, or as a result of proximity to the use of hazardous chemicals. All university employees are required to complete hazard communication training.

## 3. Responsibilities

### 3.1 WTAMU AR-EHS is responsible for:

- Identifying potentially hazardous conditions;
- Developing clear written instructions and guidelines to foster safe work environments and maintain compliance;
- Monitoring the HazCom program for effectiveness and compliance;
- Providing timely and effective training upon request;
- Assisting and advising departments in implementing safe work environments;
- Developing HazCom training;
- Making general HazCom training available and maintaining completion records of such training;
- Administering the HazCom Program for WTAMU departments;
- Developing and maintaining the master workplace chemical list;
- Reviewing and updating the master workplace chemical list as needed, but not less than annually;
- Keeping the workplace chemical list for no less than 30 years;
- Maintaining the master copy of this written hazard communication program; and
- Providing reports to Texas Department of State Health Services (TxDSHS), local emergency planning committees (LEPC), and local emergency responders, as required.

### 3.2 WTAMU Departments are responsible for:

- Establishing and maintaining a culture of safety within the department;
- Responding to safety audits;
- Overseeing departmental compliance with applicable rules and regulations;
- Complying with the HazCom Program; and
- Developing workplace and chemical specific procedures to implement the HazCom Program;

### 3.3 Supervisors are responsible for:

- Identifying employees affected by this HazCom program;
- Providing training and information regarding the HazCom program;
- Forwarding copies of safety training records to AR-EHS, as needed;
- Monitoring and ensuring compliance with applicable programs and procedures;
- Complying with workplace specific HazCom procedures and the WTAMU HazCom Program;
- Reviewing incoming SDS for new and significant health and safety information and passing such information to affected employees;
- Replacing old or outdated SDS immediately upon receipt of new SDS;
- Ensuring chemical(s) in their work areas have a corresponding SDS and ensuring no chemical use will take place within their work areas without a corresponding SDS available;
- Providing SDS to emergency responders as soon as practical; and
- Providing the necessary labeling information and, if needed, labels required to comply with the WTAMU HazCom program and WTAMU Hazardous Materials Handling, Segregation, and Labeling Procedure 24.01.01.W1.03AR.

### 3.4 Employees, visitors, and students are responsible for:

- Complying with workplace specific HazCom procedures and the WTAMU HazCom Program;
- Completing assigned HazCom training;
- Completing additional hazard communication training as needed (chemical or job specific);
- Reviewing information provided on the SDS and chemical labels prior to use of chemical;
- Knowing the location of SDS binders and who to notify during an emergency situation or chemical spill;
- Labeling all chemicals used or stored in the work area;
- Informing supervisors of any chemicals not having an associated SDS available or having an outdated SDS; and
- Carrying out all required procedures as outlined in the trainings provided.

## 4. Application

This program applies to all work operations at WTAMU where personnel may be exposed to hazardous chemical(s) under normal working conditions or during reasonably anticipated emergency situations. Copies of the program may be obtained from AR-EHS upon request. Departments are able to access this HazCom Program at all times by going to the AR-EHS SOP webpage.

Under this program, employees will be informed of their requirements under the HazCom standard(s), the hazardous properties of chemicals with which they work, safe handling procedures, and measures to take to protect themselves and others from these chemicals. Faculty, staff, and students will also be able to identify hazards associated with non-routine tasks and in different work areas through interpretation of labels, available SDS, and door signs and warnings.

Students are not WTAMU employees; however, students who work with hazardous chemicals in university facilities are subject to this HazCom Program.

WTAMU visitors and guests may be subject to the WTAMU HazCom Program. Safety Data Sheets (SDS) will be made available upon request.

## 5. Program Description

The WTAMU HazCom Program includes the following elements:

### 5.1 Safe Work Procedures

AR-EHS is responsible for developing general HazCom training and maintaining records of training completion. General HazCom training is required for all WTAMU employees upon hire with a periodic refresher (not to exceed 3 years). Students conducting academic work with courses identified as working with hazardous materials or dangerous environments are required to complete student laboratory safety training at least once per academic year. General HazCom training is a component of the student laboratory safety trainings offered at WTAMU.

Each department is responsible for ensuring departmental employees are aware of the WTAMU HazCom Program and for providing specialized training, as needed or upon request. Specialized training should focus on available engineering controls, administrative procedures, and selection and use of personal protective equipment (PPE). Departments are responsible for providing engineering controls and appropriate PPE for safe use of chemical(s) by departmental employees.

Each supervisor is responsible for developing written procedures for use of chemical in their assigned work areas. These procedures can be developed for each chemical or can be written to address groups of chemicals. Any chemical use within the supervisor's assigned work areas must be authorized by the supervisor prior to initiation of work with chemicals. Supervisors may only authorize work with chemicals after ensuring chemical users are trained regarding use of labels and SDS, safe practices, exposure indicators, first aid, and use of engineering controls and PPE.

**NOTE:** In classroom situations, students may be exposed to hazardous chemicals. In the event PPE is required, the supervisor can order PPE supplies through the WTAMU bookstore (like ordering textbooks). Supplies may include items such as goggles, dust masks, gloves, and aprons. Departments have the responsibility of ensuring appropriate PPE is required for coursework and research, and may elect to provide various components of PPE for student use. Departments which do not provide PPE for student use must still ensure appropriate PPE is required as necessary.

All chemical users must read and understand chemical SDS information and adhere to safe work practices and procedures. Any deviation from an established safe work practice or procedure must be authorized by the supervisor prior to initiation of work which would lead to the deviation.

## 5.2 Safety Data Sheets (SDS), formally known as Material Safety Data Sheets (MSDS)

The SDS is used to relay information about the chemical from the manufacturer or distributor to the user. Information such as chemical name, mixture identification, known hazards, personal protective equipment (PPE), and spill clean-up requirements are found on the SDS.

The supervisor of each work area will ensure the work site has current SDS for hazardous chemicals in that area.

A SDS must be available prior to initiation of work with hazardous chemicals. Chemical users should review the SDS prior to working with any chemical. Employees must obey the cautions listed on the SDS and utilize the personal protective equipment (PPE) required to safely handle the chemical. Users are responsible for keeping a current SDS on file. Contact AR-EHS at 651.2730 or 651.4261 if assistance is needed to obtain a SDS.

**A copy of all SDS shall be kept in the G Drive master SDS folder. AR-EHS maintains the master files.**

Both the OSHA Hazard Communication Standard (HCS) and the Texas Hazard Communication Act require chemical manufacturers, distributors, or importers to provide SDS to communicate the hazards of hazardous chemical products. As of June 1, 2015, SDS information is arranged uniformly regardless of chemical manufacturer, distributor, or importer. The format is as follows:

**Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; and restrictions on use.

**Section 2, Hazard(s) identification** includes all hazards regarding the chemical and required label elements.

**Section 3, Composition/information on ingredients** includes information on chemical ingredients and trade secret claims.

**Section 4, First-aid measures** includes important symptoms and effects, such as acute or delayed, and required treatment.

**Section 5, Fire-fighting measures** lists suitable extinguishing techniques, media, and equipment. Also addresses chemical hazards from fire.

**Section 6, Accidental release measures** lists emergency procedures, protective equipment, and proper methods of containment and cleanup.

**Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.

**Section 8, Exposure controls and personal protection** lists OSHA's Permissible Exposure Limits (PELs), ACGIH Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the SDS where available as well as appropriate engineering controls, and PPE.

**Section 9, Physical and chemical properties** lists the chemical's characteristics.

**Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.

**Section 11, Toxicological information** includes routes of exposure, related symptoms, acute and chronic effects, and numerical measures of toxicity.

**Section 12, Ecological information (non-mandatory)** includes information to evaluate the impact if the chemical were released to the environment.

**Section 13, Disposal considerations (non-mandatory)** includes known information regarding waste classifications and disposal options (always check with AR-EHS regarding waste disposal).

**Section 14, Transport information (non-mandatory)** provides guidance on classification information for

shipping and transport of the chemical via air, rail, road, and sea.

**Section 15, Regulatory information (non-mandatory)** identifies safety, health, and environmental regulations not previously indicated on the SDS.

**Section 16, Other information** includes the date of preparation or last revision of the current SDS. Also provides other useful information not already addressed on the SDS.

**PLEASE DO NOT WRITE ON OR OTHERWISE ALTER AN ORIGINAL SDS.** Contact AR-EHS for replacements, if needed.

### 5.3 Labels and Other Forms of Warning

AR-EHS verifies all primary chemical containers are properly labeled upon receiving at WTAMU. The chemicals are entered into a chemical inventory database and delivered to the work area where the chemical will be used. AR-EHS will also scan the associated SDS into the master file and provide a copy of the SDS with the chemical. Chemical users must ensure all hazardous chemicals are properly labeled and that unused chemical is either returned to the correct container or is managed in a correctly labeled secondary container.

Chemicals kept in a secondary container which is intended for **immediate** use in the work area do not require a label on the secondary container (a label is recommended but not required – even something temporary such as a piece of tape, label tape, or label and string). However, the secondary container **must be** labeled if it is left unattended for any length of time, or if the person who transferred the material from the primary container leaves the immediate area where the secondary container resides. Follow the requirements of WTAMU Hazardous Material Labeling, Handling, and Segregation Procedure 24.01.01.W1.03AR regarding labeling of secondary containers.

All storage of a chemicals requires container labels which comply with WTAMU Hazardous Material Labeling, Handling, and Segregation Procedure 24.01.01.W1.03AR.

**NOTE:** *It is advised that a label be prepared stating specifically what chemicals are being used in the work area and placed in a conspicuous spot on the work surface. This label is to contain, for each chemical being used, the information required on a WTAMU hazard-warning label. Refer to AR-EHS for help if there are any questions.*

### 5.4 Non-Routine Tasks

In the event a WTAMU employee is required to perform a non-routine task that has the potential to expose the employee to hazardous chemical(s), specialized training will be conducted to inform the WTAMU employee of the hazardous chemicals to which exposure may occur. The supervisor, AR-EHS, or a qualified consultant will explain proper precautions and safe work practices needed to reduce or avoid exposure. Contact AR-EHS for more information regarding training for non-routine tasks.

### 5.5 Training

Everyone who works with, or has the potential for exposure to, hazardous chemicals must receive initial training regarding safe use of hazardous materials. Additional training may be provided by departments or a supervisor or supervisor's designee, and is in addition to the general hazard communication training required by all employees.

Whenever a new hazard is introduced, additional training must be provided for that chemical.

Supervisors must supply training to their subordinates regarding specific hazards and the appropriate protective measures. They must be able to answer any questions and will provide regular monitoring to

insure safe work practices.

Faculty are considered professionals in the use of chemical within their area of expertise. Faculty receive the basic HazCom training and are encouraged to work with AR-EHS to develop work and chemical specific safety protocols and training. It is expected that faculty will keep up to date with the chemical use within their own field. AR-EHS verifies safe work practices via announced and unannounced inspections.

Chemical training will emphasize these items:

- Summary of work specific procedures;
- Summary of WTAMU HazCom program;
- Chemical and physical properties of hazardous materials and methods that can be used to detect the presence or release of chemicals;
- Physical hazards of chemicals (e.g., potential for fire, explosion, etc.);
- Health hazards, including signs and symptoms of illness associated with exposure to chemicals;
- Medical condition(s) aggravated by exposure to the chemical;
- Hazard reduction or elimination methods;
- Emergency procedures;
- Location of SDS and how to interpret the information;
- How to interpret WTAMU Hazardous Materials Label information; and
- Sources of additional information.

All related training should be documented with employee name, Buff Gold Card or other ID card number (visitors), and date. Training documentation must be kept on file by the supervisor. Supervisors may provide training records to AR-EHS for file management. If requested by the supervisor or faculty, AR-EHS will coordinate training sessions.

Outlines containing the recommended WTAMU training curriculum for faculty and staff are detailed in Section 8 of this document. Training for students and visitors is included in Section 8.2 of this document.

**Contact AR-EHS for more information on training.**

## 5.6 Reporting

AR-EHS is responsible for making notifications to Texas Department of State Health Services of any employee accident involving a hazardous chemical exposure or asphyxiation, and that is fatal to one or more employees or results in the hospitalization of five or more employees. Departments and supervisors are required to notify AR-EHS immediately upon discovery of hazardous situations.

## 5.7 Notice to Employees

AR-EHS will post and maintain the current version of the Notice to Employees regarding Worker Right to Know.

## 5.8 Employee Rights (Whistleblower)

WTAMU will not discipline, harass, or discriminate against any employee for filing complaints, assisting regulatory inspectors, participating in proceedings related to the Texas Hazard Communication Act, or exercising any rights under the Texas Hazard Communication Act. These rights cannot be waived and such



requests are in violation of the Texas Hazard Communication Act.

## 6. Governing Documents

- Texas A&M System Policy 24.01
- Texas Hazard Communication Act
- Public Employer Community Right-to-Know Act
- Texas Department of Health
- Texas Administrative Code, Title 25, Chapter 295
- Code of Federal Regulation, Title 29, Section 1910.1200
- Food and Drug Act
- Federal Alcohol Administration Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Federal Resource Conservation and Recovery Act

## 7. Definitions

**Acute:** An adverse effect on the human body with symptoms of high severity coming quickly to a crisis.

**Asphyxiant:** A gas or vapor, which can take up space in the air and reduce the concentration of oxygen available in the body. Examples include acetylene, methane, and carbon dioxide. Asphyxiants are of special concern in confined spaces.

**Boiling Point:** Temperature at which a liquid changes to a vapor state at a given pressure (usually sea level pressure = 760 mmHg). Mixtures may have a boiling range. Flammable materials with low boiling points usually present special fire hazards.

**"C" or Ceiling:** The maximum allowable human exposure limit for an airborne substance; not to be exceeded even momentarily. Examples: hydrogen chloride, chlorine, nitrogen dioxide, and some isocyanates have ceiling standards.

**Carcinogen:** A substance that causes cancer.

**CC (Cubic Centimeter):** a volume measurement in the metric system equal in capacity to one milliliter (ml).

**Ceiling Limit:** The maximum amount of a toxic substance allowed in workroom air at any time during the day.

**Chronic Effect:** An adverse effect on a human or animal body with symptoms that develop slowly or over a long period of time or which recur frequently. The harmful effects resulting from asbestos and silica are considered "chronic effects."

**Chronic Toxicity:** Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals

**Combustible Liquid:** Any liquid having a flash point at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flash points of 200°F (93.3°C) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

**Common Name:** Any designation or identification such as code name, code number, trade name, brand name, or generic name used to identify a chemical other than by its chemical name.

**Corrosive:** A liquid or solid that causes visible destruction in skin tissue at the site of contact.

**Cutaneous Hazard:** Chemicals that affect the dermal (skin) layer of the body. Signs and symptoms are defatting of the skin, rashes, and irritation.

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

**Decomposition Products:** Describes the hazardous materials produced during heated operations.

**Density:** The mass of a substance per unit volume. The density of a substance is usually compared to water, which has a density of 1. Substances which float on water have densities less than 1; substances which sink have densities greater than 1.

**Department:** For purposes of this program, a department is any WTAMU recognized department. Departments are engaged in official university business and are typically under the direct management of an Executive Director, Dean, Vice President, Department Head, Chief, Coach, or Director.

**Dermal:** Used on or applied to the skin.

**Dermal Toxicity:** Adverse effects resulting from skin exposure to a substance. Ordinarily said to denote effects in experimental animals.

**Dermatitis:** Inflammation of the skin.

**EPA:** Environmental Protection Agency.

**AR-EHS:** Academic and Research Environmental Health and Safety.

**Evaporation Rate:** The rate at which a product will vaporize when compared to the rate of vaporization of a known material (usually Butyl Acetate with rate designated as 1.0). Evaporation rate can be useful in evaluation of health and fire hazards of a material. Rates are classified as fast (greater than 3.0), medium (0.8 to 3.0), and slow (less than 0.9). Evaporation rate of water is 0.3.

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

**Explosive Limits:** The lowest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures below this concentration are too "lean" to burn.

**Exposure:** A person's contact with a hazardous chemical in the course of employment through any route of entry (such as inhalation, ingestion, skin contact, or absorption, etc.).

**Extinguishing Media:** Specifies the fire-fighting agents that should be used to extinguish fires.

**FL-EHS:** Fire and Life Environmental Health and Safety.

**Flammable:** Flammable limits describe the range of concentrations of a flammable gas or vapor in air that will produce a flash of fire in the presence of an ignition source. A "flammable liquid" is a solution with a flash point below 100°F (37.8°C).

**Flash Point:** The temperature at which a liquid will give off enough flammable vapor to ignite. The lower the flash point, the more dangerous the product. A "flammable liquid" is a solution with a flash point below 100°F (37.8°C). Flash point values are most important when dealing with hydrocarbon solvents. The flash point of a material may vary depending on the method used, so the test method is indicated when the flash point is given.

**Foreseeable Emergency:** Any potential occurrence, such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of hazardous chemical(s) into the workplace.

**Hazardous Chemical:** An element, compound, or mixture of compounds or elements that is a physical hazard or

a health hazard. The Hazardous Communication Standard covers chemicals in all physical forms - liquids, solids, gases, vapors, fumes, and mists - whether they are "contained" or not. The hazardous nature of the chemical and the potential for exposure are the factors determining whether a chemical is covered. If it is hazardous and there is potential for exposure, then the rule applies. Examples of hazardous chemicals include floor cleaners, fuels, welding rods (toxic fumes), paints, adhesives (poisons), laboratory grade chemicals and compounds, compressed gases, and concentrated acids.

**Hazard Ratings:** Material ratings of one to four that indicate the severity of hazard with respect to health, flammability, and reactivity.

**Hazard Warning:** Any words, picture, symbols, or combination thereof appearing on a label or other appropriate form of warning which conveys the hazards of the chemical(s) in the container(s).

**Health Hazard:** A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, and neurotoxins; agents which act on the hematopoietic system; and agents which damage the lungs, skin, eyes, or mucous membranes.

**Hepatotoxins:** Chemicals that produce liver damage.

**HRI (NFPA's Hazard Rating Index):** Chemical properties in flammability, health risk, and reactivity are rated on a scale of 0 to 4.

**HVAC:** Heating, ventilation, and air conditioning.

**Ignitable:** Capable of being set on fire.

**Incompatible:** Materials that could cause dangerous reactions from direct contact with one another. These types of chemicals should never be stored together.

**Ingestion:** The taking in of a substance through the mouth.

**Inhalation:** The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

**Irritant:** A substance that, by contact in sufficient concentration for a sufficient period of time, will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a single exposure or multiple exposures.

**Lethal Concentration (LC):** A concentration of a substance being tested that will kill a test animal.

**Lethal Concentration 50 (LC50):** The concentration of a material in air which on the basis of laboratory tests is expected to kill 50 percent of a group of test animals when administered as a single exposure (usually 1 to 4 hours).

**Lethal Dose (LD):** A concentration of a substance being tested that will kill a test animal.

**Lethal Dose 50 (LD50):** A single dose of chemical that, on the basis of laboratory tests, is expected to kill 50 percent of a group of test animals. The LD50 dose is usually expressed as milligrams or grams of chemical per kilogram of animal body weight (mg/kg or g/kg).

**Melting Point:** The temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.

**Mixture:** Any combination of two or more chemicals, if the combination is not in whole or in part the result of a chemical reaction.

**Mutagen:** Any substance able to induce mutations in DNA and living cells.

**Narcosis:** Stupor or unconsciousness produced by a chemical.

**Nephrotoxins:** Chemicals that produce kidney damage.

**Neurotoxins:** Chemicals that produce their primary toxic effects on the nervous system.

**NFPA:** National Fire Protection Agency.

**Occupational Exposure Limits:** Maximum allowable concentrations of toxic substances in workroom air to protect workers who are exposed to toxic substances over a working lifetime.

**Oral Toxicity:** Adverse effects resulting from taking a substance into the body via the mouth. Ordinarily used to denote effects in experimental animals.

**Oxidizer:** A chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

**Permissible Exposure Limits (PEL's):** OSHA's legal exposure limits.

**pH:** A number that describes the acidity or alkalinity of an aqueous solution.

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

**Polymerization:** A chemical reaction in which one or more molecules combine to form larger molecules at a rate which releases large amounts of energy. If hazardous polymerization can occur with a given material, the SDS will list conditions which could start the reaction; and since the material in most cases contains a polymerization inhibitor, it is usually used up and no longer capable of preventing a reaction.

**PPM (Parts Per Million):** Parts of vapor or gas per million parts of contaminated air by volume.

**PPB (Parts Per Billion):** Parts of vapor or gas per billion parts of contaminated air by volume.

**PPE:** Personal Protective Equipment.

**Reactivity:** A description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects, such as pressure build-up; temperature increase; or the formation of noxious, toxic, or corrosive byproducts, may occur because of the reactivity of a substance by heating, burning, direct contact with other materials, or other conditions in use or in storage.

**Sensitizer:** A substance which on first exposure causes little or no reaction but which on repeated exposure may cause a marked response, not necessarily limited to the contact site. Skin sensitization is the most common form of sensitization in the industrial setting, although respiratory sensitization to a few chemicals is also known to occur.

**Shipping Information:** The appropriate name(s), hazard class(es), and identification number(s) as determined by the United States Department of Transportation, International Regulations, and the International Civil Aviation Organization.

**Solubility:** The extent to which a substance mixes with a liquid to produce a solution.

**Solvent:** Usually a liquid in which other substances are dissolved. The most common solvent is water.

**Specific Gravity:** The ratio of the weight of a given volume of any substance to the weight of an equal volume of water.

**Stability:** An expression of the ability of a material to remain unchanged under expected and reasonable conditions of storage and use.

**STEL:** Short-Term Exposure Limit

**Supervisor:** Any faculty or non-faculty employee who directly supervises at least one WTAMU employee, or who

provides instruction to or advises at least one student, or who manages a specific work area (examples include laboratory Principal Investigator [PI], laboratory responsible person, laboratory instructors, employees with supervisory roles as indicated in the job description).

**Teratogen:** Any substance that causes growth abnormalities in embryos, genetic modifications in cells, etc.

**Threshold Limit Values (TLV's):** Expresses the airborne concentration of a material to which nearly all persons can be exposed day after day without adverse effects. TLV's are expressed in three ways:

- a) TLV-TWA: The allowable Time Weighted Average concentration for a normal 8-hour workday (40-hour work week).
- b) TLV-STEL: The Short-Term Exposure Limit or maximum concentration for a continuous 15- minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods) and provided the TLV-TWA is not exceeded.
- c) TLV-C: The Ceiling Exposure Limit is the concentration that should never be exceeded, even instantaneously.

**Toxicity:** The sum of adverse effects resulting from exposure to a material, generally by the mouth, skin, or respiratory tract.

**TWA (Time Weighted Average Exposure):** The airborne concentration of a material to which a person is exposed, averaged the total exposure time; generally the total workday (8 to 12 hours).

**Vapor Density:** The density of a material's vapor, compared to the density of the air. If a vapor density is greater than one, it is denser than air, and it will drop to the floor or the lowest point available. If the density is less than one, it is lighter than air and will float upwards like helium.

**Vapor Pressure:** The pressure exerted at a given temperature of a vapor in equilibrium with its liquid or solid. The higher the vapor pressure, the more easily a liquid will evaporate. Liquid materials that evaporate easily are termed volatile, and this means that air concentrations can build up quickly when working with the material in liquid form. Materials with high vapor pressures may be particularly hazardous if you are working in enclosed or confined areas, or if the air circulation is poor. Note: Materials with lower vapor pressure still may pose an inhalation hazard.

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

## 8. Training

All university employees are required to complete HazCom training. The training is available on TrainTraq. The training addresses chemical hazards, routes of exposure, SDS, labels, exposure types, as well as other required topics. WTAMU follows the Texas A&M University System Policy [33.05.02 Required Employee Training](#).

Staff and faculty whose required training is delinquent more than 90 days will have their internet access terminated until all trainings are completed. Only Blackboard and Single Sign-on will be accessible. Internet access will be restored once training has been completed.

Student workers whose required training is delinquent more than 90 days should have their employment terminated.

### 8.1 Faculty and Staff Training Overview

Objective:

- Employees associated with a research or teaching laboratory and employees engaged in fieldwork must understand the importance of hazard communication.

### **8.1.1 What is a Hazardous Chemical?**

Objective:

- Be able to identify and define hazardous chemicals.

WTAMU considers any chemical that presents a physical hazard or has a health warning or caution on the label or SDS to be a hazardous chemical. Any chemical that a reasonable individual believes has the potential to cause harm or injury shall be considered to be a hazardous chemical and will be used and controlled as such.

### **8.1.2 Labeling**

Objectives:

- Be able to transfer information from the manufacturer's label or Safety Data Sheet onto another container;
- Be able to transfer information from a container label onto a temporary container for classroom use;
- Be familiar with and able to use the WTAMU Hazardous Materials Labeling Procedure 24.01.01.W1.03AR;
  - NFPA Hazard Rating Index
  - Hazardous Materials Label per WTAMU 24.01.01.W1.03AR Hazardous Materials Labeling Procedure:

The following is the recommended information for labeling hazardous chemicals:

- (a) Name - As it appears on the SDS. (No abbreviations or chemical formulas.)
- (b) Health - In the blue section of the label; numerically, 0 to 4.
- (c) Flammability - In the red section of the label; numerically, 0 to 4.
- (d) Reactivity - In the yellow section of the label; numerically, 0 to 4.
- (e) Special Information - Additional codes to cover other possible hazards of the material.
- (f) Compatibility Code - An alphabetical character code (A through F) that identifies the storage compatibility class of the substance. See appendix B. (Applies to storage of unused or partial lots of a given substance and not to waste handling procedures.)

The manufacturer's label **should include** all the important information: the identity, address and possibly the phone number of the manufacturer, the chemical's trade name, appropriate hazard warnings, and possible first aid procedures for an accident.

#### **The best container for storing a chemical is the one that it was shipped in.**

If transfer a substance or a chemical to another container is needed, then label the new container as required by WTAMU Hazardous Materials Labeling Procedure 24.01.01.W1.03AR. The information to be copied is:

- (a) Name - As it appears on the SDS. (No abbreviations or chemical formulas.)
- (b) Health - In the blue section of the label; numerically, 0 to 4.

- (c) Flammability - In the red section of the label; numerically, 0 to 4.
- (d) Reactivity - In the yellow section of the label; numerically, 0 to 4.
- (e) Special Information - Additional codes to cover other possible hazards of the material.
- (f) Compatibility Code - An alphabetical character code (A through F) that identifies the storage compatibility class of the substance. See appendix B. (Applies to storage of unused or partial lots of a given substance and not to waste handling procedures.)

**The minimal information for a label must include the chemical name as indicated on the SDS, and any associated hazard warnings.**

For classroom or laboratory instruction, label temporary containers used for the day. This will prevent an accidental mix-up or mistaken identity accident and it will help students understand and visualize the demonstration better. For this type of labeling, a sharpie marker or masking tape with chemical identification will serve the purpose.

**REMEMBER: If there is any uncertainty of the identity of a chemical, then the chemical must be treated as an unknown.**

Replace damaged or unreadable labels as soon as possible. For situations where chemical is stored in an unmarked container and the identity of the chemical is not readily identifiable, contact AR-EHS for guidance.

### **8.1.3 Safety Data Sheets (SDS), formally known as Material Safety Data Sheets (MSDS)**

Objectives:

- Be able to correctly identify particular hazards of a chemical using a SDS;
- Be able to communicate those chemicals hazards to students and employees; and
- Be able to communicate proper precautions in order to avoid accidents.

Chemical manufacturers, distributors, and importers are required to provide SDS to communicate the hazards of chemical products. As of June 1, 2015, all chemical SDS are consistently formatted as addressed in Section 5.2 of this HazCom program.

### **8.1.4 Personal Protective Equipment**

Objectives:

- Be able to use a chemical SDS to assist in the selection of PPE:
  - Eye and face protection
  - Skin protection
  - Respiratory protection

Consult AR-EHS for assistance in PPE selection.

#### **Eye Protection**

Chemical splash goggles, face shields, and impact resistant glasses are the primary PPE options available for eye protection. Review the SDS or contact AR-EHS for assistance.

#### **Skin Protection**

Gloves, aprons, chemical splash suits, and vapor protective garments are the primary PPE options available for skin protection. Review the SDS or contact AR-EHS for assistance.

## Respiratory Protection

Contact AR-EHS for assistance regarding the selection, training, authorization, and use of respiratory protection.

### 8.1.5 Storage of Hazardous Materials

Objectives:

- Be able to use a SDS to determine the incompatibility between two chemicals;
- Be able to use a SDS to determine storage procedures for a chemical;

### 8.1.6 Reduction of Hazardous Materials

Objective:

- Be able to reduce use of hazardous materials through substitution, elimination, and use of micro-scale techniques.

Many of the hazardous chemicals and techniques traditionally used in the workplace have equally effective, less hazardous options. It is recommended that chemical users explore less hazardous options for their work.

When possible, WTAMU recommends use of micro-scale experiments to reduce overall chemical quantities and allow better chemical management.

### 8.1.7 Hazardous Wastes

Objectives:

- Understand what disposal of hazardous waste means;
- State the correct measures in disposing of hazardous waste created in classrooms or labs;
- Spill response and follow up actions; and
- Proper waste disposal.

**NOTE:** *Disposing of hazardous waste does not mean dumping the waste down the drain or throwing the waste back into the original container.*

**NOTE:** *Waste needs to be contained in a dedicated container labeled with the contents of the waste material. Every available effort must be made to include all chemicals that contribute to the waste.*

**DO NOT MIX DIFFERENT TYPES OF CHEMICAL WASTE. EACH NEW WASTE NEEDS A NEW CONTAINER.**

Refer to the SDS of the chemical(s) in question to determine compatibilities.

Refer to the WTAMU Drain Disposal Procedure 24.01.01.W1.06AR for information on what can and cannot be washed down drains.

**Contact AR-EHS immediately for pick-up of any unwanted chemical or waste material.**

### 8.1.8 Faculty and Staff Retraining

Employees are required to complete the WTAMU HazCom Training upon hire with refresher training not to exceed three years.

### 8.1.9 Faculty and Staff Training Records Retention

No official state records may be destroyed without permission from the Texas State Library as outlined in [Texas Government Code, Section 441.187](#) and [13 Texas Administrative Code, Title 13, Part 1,](#)



[Chapter 6, Subchapter A, Rule 6.7](#). The Texas State Library certifies Agency retention schedules as a means of granting permission to destroy official state records.

West Texas A&M University Records Retention Schedule is certified by the Texas State Library and Archives Commission. West Texas A&M University Environmental Health and Safety will follow [Texas A&M University Records Retention Schedule](#) as stated in the Standard Operating Procedure [61.99.01.W0.01 Records Management](#). All official state records (paper, microform, electronic, or any other media) must be retained for the minimum period designated.

## 8.2 Student Training

Working with the academic departments, AR-EHS has compiled a list of WTAMU courses, laboratories, studios, and other student activities in which the students could be exposed to hazardous chemicals. To participate in the course and associated laboratory, or in-class activities, the student is required to complete online “Student Laboratory Safety Training” that is assigned to the student on WT Class upon registration of a course, laboratory, studio, or other student activity. Upon registration of a course, laboratory, studio, or other student activity, the student agrees to complete the assigned training by no later than the 12<sup>th</sup> class day and the student acknowledges that access to laboratory, shop, or studio facilities will not be allowed after the 18<sup>th</sup> class day if the training has not been completed.

**NOTE:** *Due to the compressed summer course schedules the requirement is to complete the required training by the 5<sup>th</sup> class day and students not completing the training will not be allowed to participate in the laboratory or course activities after the 10th class day.*

**NOTE:** *The PI or Instructor of Record or lab manager can impose a deadline before the stated deadlines, per class, as needed. It is the responsibility of the PI or Instructor of Record to make certain that all students have completed the “Student Laboratory Safety Training”.*

AR-EHS supports the student laboratory training process through the verification process described below:

Student completion is verified on the 1<sup>st</sup> class day of the semester, and a list of students with outstanding training are compiled and sent to the PI or instructor of record each class day by AR-EHS. On the 5<sup>th</sup> class day, the instructor and associated department head are contacted by AR-EHS to determine the reason for student’s outstanding status (i.e. dropped class, not attending class, has not taken test). At this time (5<sup>th</sup> class day), AR-EHS provides a list of students with outstanding training to Advising Services in order to reach students through the early alert program. On the 13<sup>th</sup> class day AR-EHS will notify the associated Dean of any remaining students with outstanding training. On the 24<sup>th</sup> day, a final report of students with outstanding training is provided to the Provost’s Office for final action as determined by the Provost or Associate Provost. Records of student laboratory safety training are maintained for two years.

There is no OSHA law governing hazard communication for students; however, it is the intention of this program to give students the extra protection and extra education needed to compete in the workforce after graduation. Every student graduating from WTAMU must have a safe, working knowledge of the chemicals used in their fields of study and a good understanding of their rights in the workplace. An overview of topics covered in the training are as follows:

### 8.2.1 Student Responsibilities

Objective:

- To ensure that students can correctly state the purpose of the hazard communication program and state their role in the program.

The student has one major responsibility at college; that is to learn. Students must learn what chemicals to use in certain processes, how to safely handle those chemicals, and what steps to take in case of a spill.

### **8.2.2 Hazardous Materials That Will Be Used in the Classroom**

Objective:

- To make the student aware that hazardous materials will be used during the course of the semester. Students should take the time to read the SDS(s) before using the chemicals.
- Safety Data Sheets and the WTAMU Hazardous Material Labeling Procedures:
  - To be able to read and understand SDS and labels as forms of hazard communication;
  - To know SDS locations in classrooms or laboratories;
  - To understand the components of the SDS;
  - Safe handling of chemicals;
- Use of Personal Protective Equipment;
  - To teach students the different types of PPE;
  - To teach students how to determine what type of PPE is required by using a SDS;
  - To know various forms and levels of PPE; and
  - To focus on eye and skin protection.
- Proper Hazardous Waste Disposal
  - To teach students the correct way of disposing of hazardous waste at WTAMU.
    - ❖ Disposing of hazardous waste does not mean dumping the waste down the sink or throwing the waste back in the original container.
    - ❖ Unwanted or spent chemicals should go into a specific container labeled with the contents of the unwanted chemicals. Do not mix different types of hazardous materials in the same container. Each type of unwanted material should go into a different container. If there are any questions, ask the instructor. Contact AREHS to pick up unwanted material and perform a determination as to the appropriate handling of such material. A material may no longer be needed in one area but may be usable somewhere else on campus. AR-EHS will make ALL determinations of waste.

### **8.3 Specific Hazardous Substance Training**

Objective:

- To identify and provide appropriate training and specific equipment for highly hazardous substances.

This section of the program deals with the specific training of the use of chemicals for a task that requires specialized training. Since there are many chemicals used for many different tasks, the faculty/staff should determine which chemicals are hazardous enough to warrant specific training. A rule of thumb for determination is if the chemical has instructions on the original container, like most cleaning agents and consumer goods, then you don't need specific training. If the chemical comes in a container without instructions on the label, then specific training may be needed.
- The faculty/staff should give a mini-training session that includes:

- A review of the labels and label requirements;
- A review of the SDS;
- What PPE (if needed) is recommended;
- What first aid and health concerns are related to the chemical;
- How to use the chemical safely; and
- How to properly dispose of the chemical.

Before the training, the faculty/staff must make up a training report stating which chemical(s) were reviewed, the date, and who attended. EHS will provide support in training, identification of, and acquisition of appropriate PPE.

## 9. Record Retention

No official state records may be destroyed without permission from the Texas State Library as outlined in [Texas Government Code, Section 441.187](#) and [13 Texas Administrative Code, Title 13, Part 1, Chapter 6, Subchapter A, Rule 6.7](#). The Texas State Library certifies Agency retention schedules as a means of granting permission to destroy official state records.

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### Contact Office

WTAMU Environmental Health and Safety  
(806) 651-2270