



# Environmental Health and Safety

EAST TEXAS A&M

## Hazard Communication Program

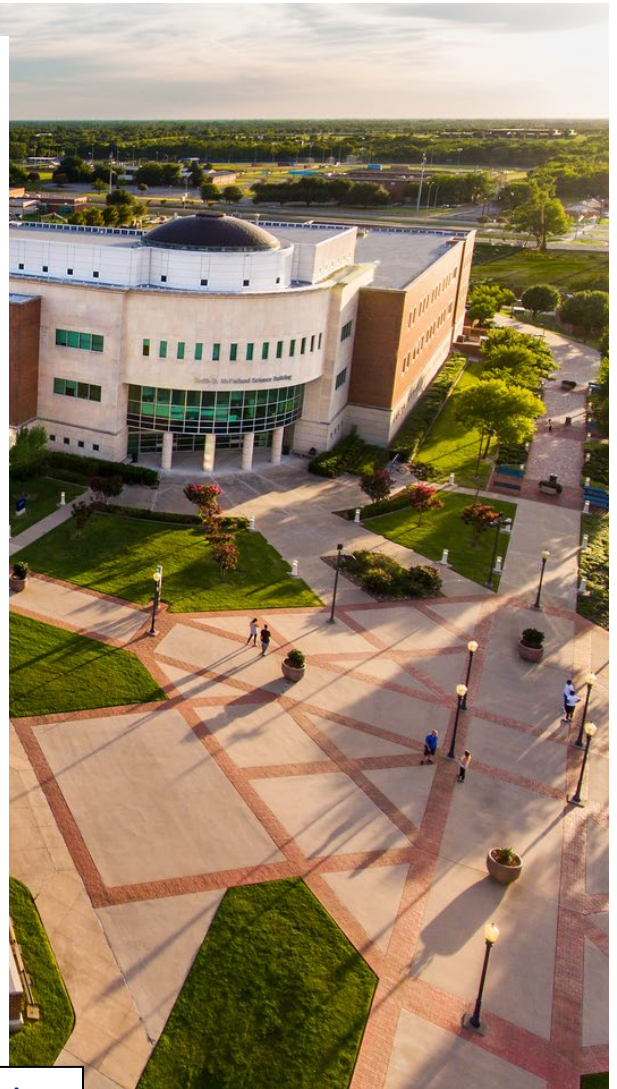
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Created September 2016  
Revised November 2024



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## INTRODUCTION

The Texas Hazard Communication Act (HCA), Chapter 502 of the Texas Health and Safety Code (HSC), requires public employers to provide information to employees regarding hazardous chemicals they may be exposed to in the workplace. The Public Employer Community Right-to Know Act, Chapter 506 of the Texas HSC, requires public employers to make information regarding hazardous chemicals accessible to local fire departments responsible for dealing with chemical hazards during an emergency, local emergency planning committees (LEPC) and other emergency planning organizations, and the Texas Commission on Environmental Quality (TCEQ) to make the information available to the public through specific procedures.

The East Texas A&M University (ETAMU) Hazard Communication (HAZCOM) Program is administered through the Environmental Health and Safety (EHS) Department with responsibility for compliance delegated throughout administrative channels to every supervisor.

The ETAMU HAZCOM Program applies to all ETAMU employees. Student employees that have occupational exposure to hazardous chemicals are covered by this program. ETAMU, through the ETAMU HAZCOM Program, will comply with the HCA by providing training, appropriate personal protective equipment, and information regarding hazardous chemicals. The ETAMU HAZCOM Program will also provide information regarding biological agents. In addition, written plans that describe how the ETAMU HAZCOM Program will be implemented and maintained within each workplace.

## PROGRAM EXEMPTIONS AND EXCEPTIONS - HSC 502.004; 506.005:

The provisions of this Program do not apply to chemicals in the following categories:

- Hazardous waste regulated by the Texas Commission on Environmental Quality (TCEQ) and/or the U.S. Environmental Protection Agency (EPA);
- Tobacco or tobacco products;
- Wood or wood products;
- Any article that is formed to a specific shape or design during manufacture, that has end-use functions dependent in whole or in part of its shape or design during end use, and that does not release or otherwise result in exposure to a hazardous chemical under normal conditions of use (e.g., tires, PVC piping);
- Food, drugs, cosmetics, or alcoholic beverages in a retail food sale establishment that are packaged for sale to consumers;
- Food, drugs, or cosmetics intended for personal consumption by an employee while in the workplace;
- Any consumer product or hazardous substance if the product is used in the workplace in the same manner as normal consumer use and if the use results in a duration and frequency of exposure that is not greater than exposures experienced by consumers;
- Any drug, as defined in the Federal Food, Drug, and Cosmetic Act;
- Radioactive waste;

- A hazardous chemical in a sealed and labeled package that is received and subsequently sold or transferred in that package if:
  - The seal and label remain intact while in the workplace;
  - The chemical does not remain in the workplace more than five working days;
  - Personnel training requirements are met;
  - The chemical is not an extremely hazardous substance at or above the threshold planning quantity or 500 pounds, whichever is less.

## **DUTIES AND RESPONSIBILITIES**

### **Department Head**

The Department Head will assure implementation and compliance with the HazCom Program within their Departments as follows:

- Develop a written procedure that describes the method of implementing the East Texas A&M University HazCom Program within the department
- Report any incident requiring outside medical assistance to the Department of Environmental Health and Safety.
- Designate work areas within each workplace (see definitions for work area);
- Post official "Notice to Employees" (see Appendix II) at locations in each work area
- Provide to the Department of Environmental Health and Safety by October 15th of each year:
  - Annual Work Area Chemical Inventory (WACI) for each work area other than a research laboratory;
  - WACI updates to the Department of Environmental Health and Safety, whenever a new chemical or additional quantity above normal restocking amounts of chemical is purchased.
  - Names and telephone numbers of emergency contacts.
  - Maintain training records for a minimum of 5 years;
- Assure that Safety Data Sheets (SDS) on hazardous chemicals purchased are available and entered into the Velocity platform, as required
- Provide employees with appropriate personal protective equipment and ensure the equipment fits the individual
- Inform employees of any non-routine chemical exposure
- Provide to the Department of Environmental Health and Safety, the name, campus address, e-mail address and phone number of the person with primary responsibility for HazCom coordination and compliance within the Department
- The Department Head will ensure that individuals in the affected workplace be provided information on the hazards of the chemicals, measures that they can take to protect themselves from those hazards, and access to SDS

## Department of Environmental Health and Safety

The East Texas A&M University Department of Environmental Health and Safety administers and coordinates the HazCom Program for East Texas A&M and designated University facilities.

Duties of the Department of Environmental Health and Safety include:

- Assign designated Workplaces at East Texas A&M University;
- Assist Departments with the implementation of, and compliance with this Program;
- Maintain liaison with the Texas Department of State Health Services (1-800-452-2791);
- Submit required annual Texas Tier Two report and fee to the TCEQ by March 1 of the following year;
- Report orally or in writing, within 48 hours, the occurrence of a chemical accident that results in one or more fatalities or the hospitalization of five or more employees (this is to include circumstances of the accident, the number of fatalities, and the extent of injuries) HSC 502.012

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- Compile, maintain, and provide designated Workplace Chemical Inventory lists;
- Maintain the WPCI lists for 30 years;
- Provide a copy of the annual Texas Tier Two report to the Local Emergency Planning Committee and to the local fire department(s);
- Provide the names and telephone numbers of emergency contacts to the local fire department(s), and provide WPCI lists and SDS/MSDSs upon request;
- Allow for inspections by the local fire department.

## Supervisors

Supervisors will ensure that the requirements of the East Texas A&M HazCom Program and Department Implementation Plan are fulfilled within their work areas. Their duties include: ensure that all employees have received appropriate training before working with or in an area containing hazardous chemicals;

- Provide to the Department Head and Human Resources Department, all HazCom training records;
- Conduct and maintain the work area inventory list, as appropriate
- Inform employees regarding the location of the work area inventory and procedures for accessing SDS/MSDSs and obtaining workplace chemical inventory lists;

- Inform the Department Head whenever a new chemical or additional quantity above normal restocking amounts of chemical is purchased. (Not required for chemicals in research labs.);
- Reporting all accidents involving a hazardous chemical to the Department of Environmental Health and Safety.

## Employees

Employees will:

- Attend training;
- Use prudent practices and good judgment when using hazardous chemicals or hazardous procedures\*;
- Notify other individuals who might be affected by the chemicals they use;
- Report all accidents involving a hazardous chemical to their supervisor.

\*Personnel who work with hazardous materials are expected to assume reasonable responsibility for the safety and health of themselves, others around them, and the environment

## Contractors

Contracted Construction, Repair and Maintenance:

- Contractors will comply with Texas and Federal Hazard Communication Acts and the East Texas A&M HazCom Program regarding hazardous or nuisance materials used during projects within East Texas A&M University facilities and property.
- The Contractor will provide to the East Texas A&M University Project Coordinator, a list of any hazardous or nuisance materials to be used on the project and will provide appropriate hazard information, including SDS/MSDSs,
- The Contractor will provide prior notification of intended use of hazardous or nuisance materials to the East Texas A&M University Project Coordinator, the Department of Environmental Health and Safety, and the Department Head of any affected East Texas A&M workplace.
- The East Texas A&M University Project Coordinator will provide to the Department of Environmental Health and Safety pertinent information, including SDS/MSDSs for the chemicals involved.

## **NON-ROUTINE EXPOSURE** - HSC 502.017(b):

Planned or Accidental Releases - Party(s) responsible for the release of hazardous or nuisance materials will notify all individuals in the affected area, the Department Head and the Department of Environmental Health and Safety. The responsible party(s) will also provide to the Department of Environmental Health and Safety appropriate precautionary information, including SDS/MSDSs for the chemicals involved. The Department Head will ensure that individuals in the affected area are provided information on the hazards of the chemicals,



measures that they can take to protect themselves from those hazards, and access to SDS/MSDSs. Planned releases are not a substitute for proper waste disposal.

### **EMPLOYEE NOTICE AND RIGHTS OF THE EMPLOYEES** - HSC 502.017:

An official Texas Department of Health “Notice to Employees” (see Appendix II) will be posted at the location(s) within each workplace where notices are normally posted. The Department of Environmental Health and Safety will ensure that East Texas A&M University employees who may be exposed to hazardous chemicals (including products with which they do not work directly) are informed of the exposure and are provided access to the pertinent workplace chemical lists and SDS/MSDSs for those hazardous chemicals.

An employee shall not be disciplined, harassed, or discriminated against by an employer for filing complaints, assisting inspectors of the TDH, participating in proceedings related to the THCA, or exercising any rights under the THCA. Employees cannot waive their rights provided by the THCA.

Employees cannot waive their rights under the Texas Hazard Communications Act. A request or requirement for such a waiver by an employer is a violation of the Act.

### **CHEMICAL SAFETY INFORMATION AND TRAINING** - HSC 502.009 and 502.017(b):

Employee education and training are essential components of the East Texas A&M University HazCom Program. Appropriate training will be provided to employees who use or handle hazardous chemicals as a part of their normal work assignments.

Training of a new or newly assigned employee will be given before the employee works with or handles hazardous chemicals.

Employees will receive additional training when the potential for exposure to hazardous chemicals in the employee’s work area increases significantly or when the employer receives new and significant information concerning the hazards of a chemical in the employee’s work area.

Training topics will include:

- Interpreting SDS/MSDSs and labels, and the relationship between the two methods of hazard communication;
- Location of SDS/MSDSs and methods for obtaining SDS/MSDSs;
- Hazards associated with applicable categories of hazardous chemicals (e.g., flammable, corrosive, toxic, and reactive) including acute and chronic effects;
- Methods for identifying specific chemicals within each chemical hazard group (e.g., DOT labels, NFPA 704 system, chemical container labels)
- Identity and location of hazardous chemicals the employee will handle
- Safe handling procedures, including proper storage and separation of incompatibles;



- Location, selection, use and care of appropriate protective clothing and equipment to minimize exposure to hazardous chemicals;
- First aid treatment to be used with respect to the hazardous chemicals the employee will handle;
- Instructions on spill cleanup procedures and proper disposal of hazardous chemicals.

## General Safety Guidelines

Always follow these guidelines when working with chemicals:

- Assume that any unfamiliar chemical is hazardous.
- Know all the hazards of the chemicals with which you work. For example, perchloric acid is a corrosive, an oxidizer, and a reactive. Benzene is an irritant that is also flammable, toxic, and carcinogenic.
- Consider any mixture to be at least as hazardous as its most hazardous component.
- Never use any substance that is not properly labeled.
- Follow all chemical safety instructions precisely.
- Minimize your exposure to any chemical, regardless of its hazard rating.
- Use personal protective equipment, as appropriate.
- Use common sense at all times.

The five prudent practices of chemical safety sum up these safety guidelines:

1. Treat all chemicals as if they were hazardous.
2. Minimize your exposure to any chemical.
3. Avoid repeated exposure to any chemical.
4. Never underestimate the potential hazard of any chemical or combination of chemicals.
5. Assume that a mixture or reaction product is more hazardous than any component or reactant.

## Safe Handling Guidelines

Employees should treat all chemicals and equipment with caution and respect. When working with chemicals, remember to do the following:

- Remove and use only the amount of chemicals needed for the immediate job at hand.
- Properly seal, label, and store chemicals in appropriate containers. Keep the containers clearly marked and in a well-ventilated area.
- Check stored chemicals for deterioration and broken containers.
- Learn how to dispose of chemicals safely and legally. Follow East Texas A&M University waste disposal requirements.
- Clean up spills and leaks immediately.
- Know what to do in an emergency.

Likewise, when working with chemicals, remember the following:

- Do not store chemicals near heat or sunlight or near substances which might initiate a dangerous reaction.

- Do not transport unprotected chemicals between the work area and other areas. Use a tray, rack, cart or rubber carrier. Always use a secondary container when transporting hazardous or highly odorous chemicals on an elevator.
- Do not pour hazardous chemicals down the sink.
- Do not put fellow workers or yourself in danger.

## Hygiene and Chemical Safety

Good personal hygiene will help minimize exposure to hazardous chemicals. When working with chemicals, follow these guidelines:

- Wash hands frequently and before leaving the laboratory. Also, wash hands before eating, drinking, smoking, or applying makeup.
- Remove contaminated clothing immediately. Do not use the clothing again until it has been properly decontaminated.
- Follow any special precautions for the chemicals in use.

In addition, follow these special precautions:

- Do not eat, drink, smoke, or apply makeup around chemicals.
- Do not wear contact lenses near chemicals, especially corrosives or volatile solvents.
- Do not keep food or food containers anywhere near chemicals.
- Do not use laboratory equipment to serve or store food or drinks.
- Do not sniff or taste chemicals.

## Lab Personnel/Students

Lab Personnel/Students: All personnel who work in Laboratories and Laboratory Support Facilities will receive the appropriate training. Students enrolled in Laboratory Courses will receive appropriate safety information and instruction if class work involves hazardous chemicals; the instructor or class supervisor will provide this training.

## Training Records

Training Records: Hazard Communication training will be assigned in TrainTraq to employees by adloc. A record of each employees training session shall:

- 1) Include the date of training;
- 2) Include specific topics covered;
- 3) Be saved for at least 5 years

**Notification of Training Completion:** EHS receives a monthly report from TrainTraq and performs a monthly spot check to verify that the training has been completed.

## **SAFETY DATA SHEETS AND/OR MATERIAL SAFETY DATA SHEETS-**

HSC 502.006:

Safety Data Sheets (SDSs) and/or Material Safety Data Sheets (MSDSs) are legal documents that provide hazard information on chemicals or chemical products produced or distributed in the United States. Federal and State laws require employers to provide employees access to SDS/MSDSs on hazardous chemicals or chemical products in the work environment.

Each Department will:

- Maintain a file of current SDS/MSDSs for all hazardous chemicals purchased. The file may be electronic or printed and will be readily available, on request, for review by employees at their workplace. It is recommended that SDS/MSDSs be maintained within each work area (e.g., lab, shop) for those hazardous chemicals being used;
- Provide a copy of SDS/MSDSs to the Department of Environmental Health and Safety upon request.
- Submit a request within 30 days to any manufacturer who fails to supply a current SDS/MSDS with a hazardous chemical that was purchased;
- Before using any chemical, read the container label and the appropriate SDS/MSDSs. Container labels and SDS/MSDSs are good sources of information for chemical safety. They provide the following information:
  - Hazardous ingredients
  - Exposure limits
  - Physical and chemical characteristics, including the following:
    - Boiling point
    - Vapor pressure
  - Physical hazards, including the following:
    - Flammability
    - Explosiveness
    - Reactivity
  - Health hazards, including chemicals that are:
    - Toxic
    - Carcinogens
    - Irritants
  - First-aid procedures
  - Proper leak, spill, and disposal techniques
  - Proper storage and handling procedures
  - Other special provisions

A copy of an SDS/MSDS may also be obtained through the Department of Environmental Health and Safety.

## **HAZARDOUS CHEMICAL INVENTORY:** HSC 502.005

Work Area Chemical Inventory (WACI) [Excluding Research Laboratories]: Each work area (e.g., teaching laboratory, chemical stock room, paint shop, art room, print center; but not research labs. See NOTE, below) will maintain an inventory list of all hazardous chemicals or chemical products present in the work area, regardless of quantity. The hazardous chemicals or products will be listed using the same name found on the label and SDS.

The WACI will include, as appropriate:

- Name and telephone number of the person responsible for the work area and the name and signature of the person responsible for compiling the inventory;
- The Department name;
- Location of the hazardous chemicals (building and room)
- Chemical name or the common name of a product and its hazardous ingredients;
- CAS number;
- Container type
- Hazard associated with the chemical;
- Quantity of product in pounds.

The supervisor of each work area will update, and provide the inventory to the Department Head annually, upon request, and when necessary. A WACI will be updated when a new chemical or additional quantity above normal restocking amounts of chemical is purchased. The Department Head will provide the inventories to the University Safety manager by October 15th of each year and as necessary. The Department will maintain a copy of each WACI for the current year and these will be readily accessible to employees.

The Department of Environmental Health and Safety will use the WACIs to compile a Workplace Chemical Inventory (WPCI). The WPCI includes only those hazardous chemicals in a designated workplace that are equal to or greater than the “workplace reporting threshold”. If a designated Workplace Chemical Inventory (WPCI) workplace is occupied by more than one Department, a single WPCI will be compiled by combining WACIs for all Departments within the workplace. The Department of Environmental Health and Safety employee responsible for compiling the WPCI will sign and date it. The WPCI will remain on file at the Department of Environmental Health and Safety for 30 years. A new WPCI for each designated workplace will be compiled by December 31 of each year, or as needed. East Texas A&M University employees may obtain a copy of the WPCI from the Safety Office, upon request.

## **Tier Two Report-** HSC 295.182(d); 506.006:

The Department of Environmental Health and Safety will compile a Texas Tier Two Report for each East Texas A&M University facility. The Texas Tier Two Report includes all hazardous chemicals and chemical products exceeding 10,000 pounds and all extremely hazardous substances exceeding 500 pounds or the Threshold Planning Quantity, whichever is less. (A list of Extremely Hazardous Substances and the Threshold Planning Quantities are available through the Department of Environmental Health and Safety). The Report will be submitted by March 1st each year, for the preceding calendar year, to the TCEQ with the appropriate filing

fees. A copy of the Tier Two Report will remain on file at the Department of Environmental Health and Safety until the following year's report is filed with the TCEQ. A copy of each Texas Tier Two Report is sent to the Local Emergency Planning Committee, and the Commerce Fire Department. The Tier Two Report will be revised and reported to TCEQ and local agencies, as appropriate.

## **CONTAINER LABELS** - HSC 502.007:

Containers of hazardous chemicals will be properly labeled.

- Labels on primary containers must:
  - Identify the material as it is on the SDS/MSDS;
  - Include appropriate hazard warnings (An appropriate hazard warning includes the key word(s) of the chemical hazard such as, poison, flammable, corrosive, carcinogen, etc.).
  - Include the manufacturer's name and address.
- Labels on an existing container of a hazardous chemical may not be removed or defaced unless they are illegible, inaccurate, or do not conform to the OSHA Hazard Communication Standard or other labeling requirement. If a primary container label is removed or missing, the container must be relabeled with at least the information in 1 (above).
- Labels on secondary containers of non-research laboratory chemicals will include the chemical identity, as it appears on the SDS/MSDS, and appropriate hazard warnings.
- Complete labels are not required on portable container(s) intended for the immediate (within a work shift) use by the employee who performs the transfer. However, the contents should be readily identifiable.

## **Hazardous Waste and Disposal**

Hazardous waste disposal is governed by the TCEQ and the EPA through State and Federal regulations. The purpose of environmentally sound disposal methods is to prevent harm to the water, land, and air. East Texas A&M University complies with hazardous waste disposal regulations by means of the Hazardous Waste Management Program. This program is available from the Department of Environmental Health and Safety.

## **Penalties of Noncompliance**

Noncompliance with any hazardous waste regulation may result in substantial fines and penalties for the University. In addition, individual generators may be personally liable. Generators may be cited or fined for numerous types of violations. Violations range from improperly labeling a waste container to intentionally disposing of hazardous waste incorrectly.

## **Department of Environmental Health and Safety**

The Department Environmental Health and Safety administers the Hazardous Waste Management Program at East Texas A&M University. Compliance with this program is very

demanding — it requires full cooperation by all campus entities. The main focus of this program is chemical waste management. The program does not include procedures for the management of radioactive, infectious, biological, or nonhazardous waste.

The Department of Environmental Health and Safety collects, transports, and stores hazardous waste until it is shipped for final disposal. The department also maintains permanent records of all disposed waste. Contact the Department of Environmental Health and Safety for more information on hazardous waste disposal.

## Types of Hazardous Waste

An item is considered waste when the owner determines that the material is no longer useful and needs to be discarded. An item is considered to be hazardous waste if it meets one or more of the following characteristics:

- A chemical component is listed as one of the EPA's Listed Wastes (F, K, P, or U Lists).
- A material meets the definition of one of the following characteristics:
  - Ignitability (flashpoint < 60° C or supports combustion)
  - Corrosivity (pH ≤ 2 or ≥ 12.5)
  - Reactivity (e.g., water reactive, cyanides, explosives, unstable chemicals)
  - Toxicity (e.g., pesticides, heavy metals, poisons)
- A mixture contains a listed hazardous waste and a nonhazardous waste.
- Material is not excluded from regulations.

Individual departments are responsible for properly identifying the hazardous waste they generate and for following University disposal procedures. Refer to the EPA website (<https://www.epa.gov/hw>) for a list of regulated hazardous chemicals.

## Containers, Tags, and Collection

Proper containment, tagging, collection and disposal are essential to the success of the Hazardous Waste Program. The following sections discuss these areas.

### Filling Containers

Hazardous waste collection containers must be in good condition, must not leak, and must be compatible with their hazardous contents (e.g., do not use metal containers for corrosive waste or plastic containers for organic solvents). All containers must have suitable screw caps or other secure means of closure. When large waste containers (greater than 10 gallons total volume) are warranted, contact the Department of Environmental Health and Safety for assistance. If you are reusing a container to accumulate waste, destroy the original product label. EPA regulations require that waste containers be labeled with the accumulation start date, the identity of the contents, and the words "Hazardous Waste". Use a new label to identify the hazardous waste, do not use the disposal tag for this purpose.

*IMPORTANT:*

*Never overfill hazardous waste containers. Expansion and excess weight can lead to spills, explosion, and extensive environmental exposure.*

- Hazardous waste containers for liquids are generally rated by volume capacity. Allow extra room in liquid containers to allow for contents expansion.
- Do not fill jugs and bottles past the shoulder of the container. The shoulder of the container is the place where the container slopes in towards the neck.
- Fill closed head cans (5 gallons or less) to leave approximately two inches of space between the liquid level and the top of the container.
- Fill closed head drums (larger than 5 gallons) to leave approximately four inches of space.
- Hazardous waste containers for solids are generally rated by their weight capacity and volume capacity. Take care not to exceed the weight capacity of a solid container. Weight is generally not a problem for jars and open head cans (5 gallons or less), but it can be a problem for open head drums (larger than 5 gallons). Depending on weight requirements, you may fill containers for solids within two inches of the closure.

**IMPORTANT:**

*Keep all waste collection containers closed except when adding or removing material.*

## **Completing Tags**

When a container is ready for disposal, complete a waste tag (available from the Department of Environmental Health and Safety) and attach it to the container. A waste disposal tag must be attached to each waste container before disposal. Follow these guidelines for completing hazardous waste tags:

- Completely fill out both the upper and lower sections of the tag. (This information is essential for record keeping.)
- The "REQUESTOR" is the person in charge of the lab.
- Use full chemical names or common names. Chemical formulas or abbreviations are not acceptable.
- List all chemical components in the waste container, including water. Long lists may be continued on the back of the tag.
- Indicate the percent concentration of potentially explosive materials such as picric acid and nitro compounds.
- Place additional hazard information in REMARKS.
- Attach the tag to a string which encircles the container. Rubber bands, tape, and wire are not acceptable.

## **Collection and Disposal**

- After receiving a properly completed waste disposal tag, the Department of Environmental Health and Safety will collect the waste.



- Containers with improper caps, leaks, outside contamination, or improper labeling will not be picked up until these problems have been corrected.
- Improper disposal methods for hazardous chemical waste include the following:
  - Disposal down the drain.
  - Intentional evaporation in a fume hood.
  - Disposal in the regular trash.

## Disposing of Empty Containers

What do I do with empty chemical containers? How do I get rid of them? Can they be placed in the trash dumpster? These are questions frequently asked by East Texas A&M University personnel. The answer is fairly simple but very important.

*EPA regulations stipulate that empty containers must meet the following requirements:*

- *Containers must not contain free liquid or solid residue.*
- *Containers must be triple rinsed.*
- *Product labels must be defaced or removed.*
- *Container lids or caps must be removed.*

Punch holes in the bottom of metal containers and plastic jugs before disposing of them in the regular trash. It is not necessary to break empty glass containers.

### **IMPORTANT:**

*Containers that do not meet the requirements mentioned here must be treated as hazardous waste.*

## Minimization and Substitution

The cost of commercial waste disposal continues to rise and the amount of waste generated continues to increase. East Texas A&M University cannot control disposal costs, but it can reduce the amount of waste generated. The following sections discuss how to minimize waste sources and waste products.

## Waste Source Reduction Techniques

Use the following techniques to reduce waste sources:

- Purchasing and Inventory Control.
  - Use computerized tracking systems to manage purchasing and control inventory.
  - Maintain current inventory records to prevent overstocking and to monitor the shelf life of remaining chemicals.
  - Develop a campus-wide chemical exchange network to promote chemical sharing and avoid redundant purchases.
  - Negotiate with suppliers to gain volume discounts, flexible delivery schedules, and delivery of fewer small-sized containers without cost penalties.

- Purchase quantities for immediate use only. Do not order quantities to obtain a special unit cost savings.
- Obtain compressed gases from vendors who accept return of empty or partially full cylinders.
- Include waste generation as a criterion in equipment selection.
- Rotate chemical stocks to use chemicals before their shelf-life expires.
- Chemical Usage.
  - Use lab procedures that assure the integrity of chemical quality.
  - Reduce spills and waste by pre-weighing chemicals for undergraduate use.
  - Require proper labeling of all secondary containers. Replace all deteriorating labels on primary and secondary containers.
  - Substitute less hazardous chemicals whenever possible (e.g., biodegradable scintillation cocktails instead of xylene or toluene-based cocktails).
  - Minimize the use of heavy metals (e.g., silver, chromium, mercury, barium, cadmium, and lead).
  - Substitute alcohol or electronic thermal monitors for mercury thermometers.
  - Use "No-Chromix", detergents, or enzymatic cleaners to clean laboratory glassware.
  - Minimize solvent waste by recycling or substitution.

## Waste Minimization Techniques

Follow these techniques to reduce hazardous waste:

- Establish a Faculty Task Force to review waste streams and recommend waste minimization procedures.
- Do not mix different types of waste.
  - Do not put non-hazardous waste, such as a mixture of water, sodium bicarbonate, and acetic acid, into a waste container of hazardous waste.
  - Do not combine inorganic heavy metal waste with organic solvents waste.
  - Segregate halogenated waste solvents from non-halogenated waste solvents.
- Segregate waste streams by storing them in separate waste containers. Store waste containers separate from reagent containers being used to avoid accidental contamination.
- Decontaminate empty containers to make them non-hazardous.
- Neutralize dilute acids and bases to make them non-hazardous and suitable for drain disposal.
- When possible, redesign experimental protocols so that harmful byproducts are detoxified or reduced.
- Recycle chemicals via purification.
- Make lab employees accountable for waste when labs are decommissioned.

## Segregation

Segregated waste is safer and easier to dispose of than non-segregated waste. Mixed waste, for example, must be handled as both radioactive waste and hazardous waste.

Each employee who generates waste is personally responsible for the following:

- Ensuring that hazardous wastes are accumulated in safe, transportable containers.
- Ensuring that hazardous wastes are stored properly to prevent possible exposure.
- In addition to the guidelines for waste minimization and substitution, follow these guidelines for waste segregation:
- Segregate waste into the following groups:
  - Halogenated solvents
  - Non-halogenated solvents
  - Acids
  - Bases
  - Heavy metals
  - Poisons
  - Reactives
- Do not mix non-hazardous waste, such as water, with hazardous waste.
- Do not combine inorganic heavy metal waste with organic solvent waste in hazardous waste containers.
- Double-bag dry materials contaminated with chemicals (paper, rags, towels, gloves, or wipes, etc.) in heavy-duty plastic bags. Do not use biohazard bags. Dispose of these items in the same manner as hazardous waste.
- Encapsulate clean sharps (e.g., needles, razor blades, etc.) then place them in trash dumpsters.

## Special Concerns

Employees who generate hazardous waste must maintain and control their hazardous waste accumulation areas. Special concerns for hazardous waste include the following:

- Unneeded chemicals that are to be discarded must be handled and managed as hazardous waste.
- Unknown chemical waste will be picked up by the Department of Environmental Health and Safety. Departments will be charged for the chemical analysis to determine proper disposal method.
- Gas cylinders are extremely difficult to discard. They should be returned to the manufacturer or distributor whenever possible. Cylinders that cannot be returned should be tagged as hazardous waste as soon as possible.
- Photographic chemicals containing silver may not be placed in the sanitary sewer. They must be disposed of as hazardous waste.

### NOTE:

*Some developing equipment has a filter to capture silver before the photographic effluent enters the drain. Please notify the Department of Environmental Health and Safety if you have this type of equipment.*

## **APPENDIX I - Definitions**

### **Appropriate Hazard Warning**

Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the health and physical hazards, including the target organ effects of the chemical(s) in the container(s).

### **Categories of Hazardous Chemicals**

A grouping of hazardous chemicals with similar properties.

### **Central Accumulation Area**

Area(s) designated by the Department of Environmental Health and Safety to be used for the storage of hazardous wastes prior to shipment to permitted disposal facilities.

### **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) of the Chemical Abstracts Service (CAS) rules of nomenclature or a name that clearly identifies the chemical for the purpose of conducting a hazard evaluation.

### **Common Name**

means a designation of identification, such as a code name, code number, trade name, or generic name, used to identify a chemical other than by its chemical name.

### **Container**

Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical or contains multiple smaller containers of an identical hazardous chemical. The term "container" does not mean pipes or piping systems, nor does it mean engines, fuel tanks, or other operating systems in a vehicle. A primary container is one in which the hazardous chemical is received from the supplier. A secondary container is one to which the hazardous chemical is transferred after receipt from the supplier.

### **Department**

means a department, service or other distinct administrative organization.

### **Disposal**

The discharge, deposit, injection, dumping, spilling, or placing of any solid waste or hazardous waste (whether containerized or uncontainerized) into or on any land or water so that such solid waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any water, including ground waters.

### **Employee**

means a person who is on the payroll of East Texas A&M and who may be or may have been exposed to hazardous chemicals in the person's workplace under normal operating conditions or foreseeable emergencies.

**Expose or Exposure**

means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry, including inhalation, ingestion, skin contact, or absorption. The term includes potential, possible, or accidental exposure under normal conditions of use or in a reasonably foreseeable emergency.

**Extremely Hazardous Substance**

Means any substance as defined in EPCRA, Section 302, or listed by the United States EPA in 40 CFR Part 355. The list of Extremely Hazardous Substances and Threshold Reporting Quantities can be accessed through the Department of Environmental Health and Safety.

**Generator**

Any person, by site, who produces municipal hazardous waste or industrial solid waste; any person who possesses municipal hazardous waste or industrial solid waste to be shipped to any other person; or any person whose act first causes solid waste to become subject to regulation.

**Hazardous Chemical**

Means any element, compound or mixture of elements or compounds that is a physical or health hazard. Relatively innocuous materials such as NaCl, sugars, enzymes, etc. are exempt. A hazard determination may be made by employers who choose not to rely on the evaluations made by their suppliers if there are relevant qualitative or quantitative differences. A hazard determination shall involve best professional judgment: factors such as quantity, concentration, physical properties (i.e., volatility) and use may be considered.

**Hazardous Waste**

Any solid waste material listed or identified in Title 40 Code of Federal Regulations, Part 261, Subpart C or D or exhibiting the characteristics of ignitability, corrosivity, reactivity, or E.P. toxicity also defined in Part 261. Tables containing the listing and characteristics of hazardous wastes are shown at the end of this chapter.

**HazCom**

means Hazard Communication

**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 hemopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

**HSC**

means the Texas Health and Safety Code.

**Label**

Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals, and which includes the same name as on the Safety Data Sheet (SDS) or Material Safety Data Sheet (MSDS).

**Laboratory**

means any research, analytical, or clinical facility equipped for experimentation, observation, or practice in a science or for testing and analysis.

**Material Safety Data Sheet (MSDS)**

A document containing chemical hazard and safe handling information for the hazardous chemical as determined by the chemical's manufacturer.

**Mixed Waste**

A radioactive waste that is also a hazardous waste.

**Name**

the chemical identity on the container label, the SDS/MSDS and inventory list.

**Personal Protective Equipment (PPE)**

Protective equipment provided to an employee by the employer which provides a level of protection to chemicals to which an employee may be exposed that will be adequate to ensure their health and safety based on current industry standards (e.g., respirator, gloves, lab coat).

**Physical Hazard**

means a material for which there is scientifically valid evidence that it is a combustible liquid, explosive, flammable, compressed gas, organic peroxide, oxidizer, pyrophoric, unstable (reactive), or water reactive.

**Primary Container**

means the container in which the chemical arrives from the manufacturer.

**Readily Available**

to an SDS/MSDS means access during an individual's work shift.

**Research Laboratory**

means facility equipped for scientific investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of new or revised theories or laws. NOTE: For the purposes of the Texas Hazard Communication, this DOES NOT include teaching labs or chemical stock rooms.

**Safety Data Sheet (SDS)**

The Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), aligned with the GHS in 2012, requires that the chemical manufacturer, distributor, or importer provide Safety Data Sheets (SDSs) for each hazardous chemical to downstream users to communicate information on these hazards. Safety Data Sheets were formerly called Material Safety Data Sheets, or MSDSs. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent, user-friendly, 16 section format.

**Satellite Accumulation Area**

An area, system, or structure for temporary accumulation of hazardous waste prior to transport to the central accumulation area.

**Solid Waste**

Any garbage, refuse, sludge from a waste treatment plant, water treatment plant, or air pollution control facility or other discarded material. Solid waste can be solid, liquid, semi-solid, or contained gaseous material resulting from industrial, municipal, commercial, mining and agricultural operations, and from community and institutional activities.

**Stationary Process Container**

A tank, vat, or other such container which holds different hazardous chemicals at different times.

**TDH**

means the Texas Department of Health.

**Technically Qualified Individual**

An individual with a professional education and background working in the research or medical fields, such as a physician or registered nurse, or an individual holding a minimum of a bachelor's degree in a physical or natural science.

**Texas Tier Two**

is the report submitted annually to the Texas Department of Health that reports quantities of hazardous chemicals per the Texas Tier Two Report from TDH.

**Work Area**

is a room, a defined space, a utility structure or an emergency response site within a workplace where hazardous chemicals are present, produced, used, or stored and where employees are present.

**Workplace**

is an establishment at one geographical location containing one or more work areas. A single building or a complex of buildings in close proximity with similar work activities can be designated as a workplace. East Texas A&M University workplaces are designated by the Department of Environmental Health and Safety.



**Workplace Chemical Inventory**

is the list of hazardous chemicals in a designated workplace.

**Workplace Reporting Threshold**

is when the quantity (at any time during the year) of a hazardous chemical exceeds 55 gallons/500 pounds or the Threshold Planning Quantity (TPQ) in pounds, or 500 pounds, whichever is less, for those chemicals on the Extremely Hazardous Substance List.

**Waste**

Any useless and valueless material that is to be discarded.

## **APPENDIX II – Notice to Employees**

<https://www.dshs.texas.gov/WorkArea/linkit.aspx?linkidentifier=id&ItemID=8589989160>