

# ***TEMPLE UNIVERSITY***

# ***HAZARD COMMUNICATION MANUAL***

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# I. INTRODUCTION

## OVERVIEW

Environmental Health and Radiation Safety (EHRS) at Temple University (TU) has developed this Hazard Communication manual to promote a safe work environment for employees who handle or come into contact with hazardous chemicals during their work activity. This manual complies with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 Code of Federal Regulation, 1910.1200.

## APPLICABILITY

The manual applies to all students, faculty, staff, and visitors who may come into contact with or be exposed to hazardous chemicals at Temple University (TU) while performing their normal duties or during emergency conditions.

This manual does not apply to the following materials, as they are exempt from the OSHA Hazard Communication Standard:

- Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively).

**NOTE:** The employer must show that the substance is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product and the use results in a duration and frequency of exposure that is not greater than the range of exposure that could reasonable be experienced by consumers when used for the purpose intended.

- Hazardous waste, food, wood, tobacco, and potentially hazardous substances, such as drugs and cosmetics, brought to Temple university for personal consumption (e.g., rubbing alcohol in a first aid kit) would not be covered by this Plan.
- Laboratory use of Hazardous Chemicals-Refer to Chemical Hygiene Program
- Ionizing and non-ionizing radiation-Refer to Radiation Safety and Occupational Safety
- Hazardous Waste as defined in the Solid Waste Disposal Act (RCRA)-Refer to Chemical Waste Management Program

## **ROLE OF ENVIRONMENTAL HEALTH AND RADIATION SAFETY (EHRS)**

The principal role of EHRS is to serve as the primary universal resource for all matters pertaining to biological safety, chemical safety, radiation safety, occupational safety, and emergency response support within Temple University (TU). EHRS provides technical guidance, compliance assistance, remediation oversight and training to the TU community.

For the chemical waste minimization, the main role of EHRS is to provide chemical waste minimization services in conjunction with technical assistance, training, and support resources so that all TU personnel are aware of their individual responsibilities in helping the University meet the following goals:

- Ensure all chemicals are managed in a way that protects the health and safety of all students, faculty, staff, and visitors to the University.
- Use the most responsible and environmentally sound management and disposal methods as are practical, and that prevents release into the environment.
- Reduce the quantity and/or toxicity of chemicals utilized by the University to the lowest level possible.
- Comply with all local, state, and federal regulations regarding chemical management and disposal; and

This manual will be revised and updated as necessary to reflect changing regulations and circumstances. The most current copy of this manual is available on the EHRS website. Copies of the written manual and related information may be obtained from Environmental Health & Radiation Safety (EHRS)

Environmental Health & Radiation Safety (EHRS)

Pharmacy-Allied Health Building

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Phone: 215-707-2520

Email: [ehrs@temple.edu](mailto:ehrs@temple.edu)

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## **YOUR RESPONSIBILITY**

The Temple University Hazard Communication program is fully dependent on the willing and active participation of the whole University community. To ensure the safety and compliance

with the law, the first responsibility of all TU personnel is to follow the procedures outlined in the program and specifically in this manual.

## **REGULATORY OVERVIEW**

As required by the Occupational Safety & Health Administration (OSHA), employees have the “right-to-know” about the hazards of chemicals in the workplace and how to work with hazardous chemicals in a manner that keeps themselves and others safe. The OSHA Hazard Communication Standard (29 CFR 1910.1200) was created to ensure that employers provide their employees with guidance to understand the hazards of the chemicals they work with.

## **II. HAZARD ASSESSMENT & DETERMINATION**

Managers and Supervisors are required to inform employees, visitors, and contractors (where applicable) of chemical hazards if a chemical itself is hazardous or if it can release a hazardous component during normal use or accidental discharge. Chemicals include both pure and mixed forms of solids, liquids, gases, and liquids stored in gas cylinders, and substances that may be released during procedures or work task.

Every work task where employees are potentially exposed to hazardous chemicals, including non-routine tasks, are required to be evaluated to determine appropriate precautions. The assessment is required to be conducted by a person knowledgeable about the hazards and the use and limitations of engineering controls and personal protective equipment (PPE). If new chemical hazards are introduced to the work area, or if procedures are modified in such a way that the exposure changes, a new hazard assessment must be performed.

Temple University (TU) relies upon the hazard determination and SDS supplied by the chemical manufacturer or distributor to determine the hazards of all chemicals bought, used, or stored at TU workplaces. Manager and Supervisors will use this information and any other resources available in helping to determine hazards and applicable precautions and measures necessary when using chemicals in the workplace.

Contact EHRS if you require assistance in conducting Hazard Determinations and Assessments.

### **III. CHEMICAL INVENTORY**

All departments and/or locations that store and/or use hazardous chemicals are required to maintain a complete inventory of all such compounds. Managers or supervisors must develop and maintain chemical inventories in areas under their control. For the sake of simplicity, any material for which there is a safety data sheet (SDS) should be considered hazardous. A chemical identity used on the chemical inventory can be a chemical name, common name, or other designation, if it allows cross-reference to the container label and SDS. Use of chemical formulas or abbreviations should be avoided.

Temple University chemical inventories are maintained in Chemical Environment Management System (CEMS). CMES is a web-based chemical inventory management system that allows authorized users to access and edit their chemical inventory and associated Safety Data Sheets (SDS).

Managers and Supervisors are required to update CMES inventories as work processes or chemical use changes. Inventories are required to be reviewed annually even if work process and chemical usage has not changed.

CEMS is utilized to facilitate federal and state regulatory reporting (ex. Department of Homeland Security). In addition, the system fulfills an agreement with local emergency response agencies, allowing them to access information regarding possible chemical hazards in case of emergency.

Detailed information about CEMS and how to use it can be found on the Environmental Health and Radiation Safety website at <https://www.temple.edu/ehrs>.

### **IV. SAFETY DATA SHEETS (SDS)**

#### **GENERAL INFORMATION**

All employees are required to have ready access to the Safety Data Sheets (SDS) for each hazardous chemical they may use or be exposed to. It is important that employees can always access the SDSs while working with chemicals. It is also important to maintain access to SDSs for new products.

Safety Data Sheet (SDS), formerly known as Material Safety Data Sheets (MSDSs), are written or printed documents prepared and distributed with chemicals by chemical manufacturers, distributors and/or importers. SDSs are written in English and have a standardized format in accordance with the Globally System of Classification and Labeling of Chemicals (GHS).

SDSs provide critical information about the safety and health hazards posed by a chemical, as well as precautions to take when using it or in case of accidental release.

EHRM maintains the online CEMS inventory of chemical and helps ensure that SDS are accessible to all employees. Employees can access SDSs at any time in CEMS by going to <https://cems.unh.edu/temple/CEMS/SearchSDS#searchform>.

Managers or supervisors must ensure that:

- CEMS inventory, SDS, and any other paper copy system are updated annually or whenever chemicals are added or removed from the area.
- SDSs are kept for every hazardous chemical used and stored in all areas under their control.
- SDSs are readily accessible to all personnel who work with or who may come into contact with hazardous chemicals.
- SDSs are accessible to emergency response personnel
- All personnel know where the SDSs are kept.
- As new chemicals are ordered, the SDSs must be obtained from the chemical manufacturers, distributors and/or importers.

## OBTAINING SDS

All departments should receive an SDS from chemical manufacturers, distributors and/or importers at the time of purchase. If the SDS is not provided with the chemical shipment, the manager or supervisor must obtain the SDS within a reasonable amount of time.

All employees must be provided reasonable access to SDSs. SDS must be provided, upon request. Electronic access is acceptable as long as personnel can get the information in a reasonable and timely manner.

All personnel may obtain a copy of an SDS by:

- Downloading it from the manufacturer's website.

- Retrieving it from the CEMS SDS database at <https://cems.unh.edu/temple/CEMS/SearchSDS#searchform>
- Contacting EHRS for assistance (24 hours)

## **SDS REVIEW**

All employees who work with hazardous chemicals are required to review relevant SDSs prior to working with any hazardous chemical

Each Manager or Supervisor are required to review all incoming SDSs for new and significant health and safety information. Any new information must be provided to employees so that appropriate safety measures can be taken (e.g., PPE, engineering controls).

Upon request, EHRS will assist in evaluating SDSs, determining hazards, and selecting protective measures. If deficiencies exist or additional information is needed concerning the SDSs, the Manager, Supervisor and/or EHRS will contact the chemical manufacturer or supplier to obtain the necessary information.

## **V. CONTAINER LABELING**

The purpose of container labeling is to provide personnel with information about the potential hazards of the chemical they use and to provide information needed to allow an employee to find the corresponding Safety Data Sheets (SDS).

### **ORIGINAL CONTAINER LABEL-PRIMARY**

Original container labels are produced by the manufacturer or imported and must include the following information:

- Product identifier
- Signal word
- Hazard Statements(s)
- Pictogram(s)
- Precautionary statement(s)
- Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.



Chemical containers must have a label with the completed information above, be legible and in English, when received from the manufacturer or they must be rejected and returned to the manufacturer.

No one shall intentionally deface or obscure container labels or other hazard warnings on incoming containers of hazardous materials. If the original labels become illegible, secondary container labels must be attached. All employees using hazardous chemical are responsible for ensuring that labels are legible on all containers in their work area.

### **WORKPLACE CONTAINER LABEL-SECONDARY**

Workplace (secondary) containers into which a chemical have been transferred from an original labeled container must also be labeled by the employee conducting the transfer.

Exemption: If the chemical is put into a workplace (secondary) container that will be under the direct control of the individual who transferred it and all of it will be consumed during the same shift, then the second container does not need to be labeled.

At a minimum, a workplace (secondary) container label must identify:

- Chemical or product name
- Appropriate hazard warnings written as words, symbols, pictures, or a combination thereof, which provide at least general information regarding the chemical and physical hazards.

This can be done by either a pre-printed label or container supplied by the manufacturer or by physically writing this information directly on a container or blank label. Tags, signs, placards, process sheets, operating procedures or other such written information with required information may be used in lieu of labels.

### **CHEMICAL WASTE LABELING**

Hazardous waste is exempt from the Hazard Communication Program, but label requirements are mandated in in other TU program and personnel handling hazardous waste must be informed of potential hazards and necessary precautions. Labeling of chemical waste containers must be in accordance with the instruction listed in the [Chemical Waste Management Program](#). Containers are required to be labeled as soon as waste begins to accumulate in them.

## STATIONARY CONTAINERS

Stationary containers such as process containers, chemical baths, or pipes in work areas that contain hazardous chemicals must be labeled. The label must be easily visible from the work area.

Specific labeling or signage requirements mandated by regulatory departments may also be required, which will align with TU practices to identify chemical contents and hazards. The label must be visible from the work area. This could be tags, placards or signs identifying the materials and their hazards, or other readily observable labeling method. Check with EHRS to determine specific requirements.

## DEPARTMENT OF HOMELAND SECURITY “CHEMICAL OF INTEREST”

If a specified “[Chemical of Interest](#)” per US Department of Homeland Security is procured, a “Do Not Ship-Contact EHRS” label must be attached to the container to remind workers of special requirements.

This chemical is federally regulated and cannot be shipped without prior EHRS notification. Contact EHRS at 215-707-2520 for details.”

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) LABELS/SIGNS

Fire departments use the NFPA 704 labeling system to convey general information about the hazards to emergency responders in the case of a fire or spill inside of a room. The system rates a chemical’s hazards, on a scale of 0-4 with 4 being the most hazardous (opposite of the GHS). This labeling system can be used in addition to the GHS label requirements, but not a substitute for proper secondary labeling which should include the name of the substance, signal words and hazards.

The Philadelphia Fire Department requires room signs on all new or renovated laboratories and other areas where hazardous chemicals are used or stored.

## VI. TRAINING & INFORMATION

All employees are required to receive training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new chemical hazard on which they have not been previously trained is introduced to the work area. The training consists of two parts:

## 1. [Hazard Communication \(Provided by EHRS\)](#)

This training includes, at a minimum:

- The provisions of the OSHA Hazard Communication Standard including:
  - what is a Safety Data Sheet (SDS), what information do SDS contain, and how are they obtained;
  - the structure and format of the SDS,
  - new manufacturer labeling requirements, including information on pictograms, hazard statements and precautionary statements, and how labels relate to SDS,
  - requirements and elements of a written Hazard Communication Program,
  - requirement for training.
- An overview of general toxicology, including methods to recognize hazards, hazard evaluation, and common methods to prevent and control employee exposure.

## 2. Department Specific Training & Information

Additional specific information on certain hazardous chemicals or categories of materials used in the workplace is required to be provided to employees by their department. Managers and/or Supervisors are responsible for informing employees of:

- The location and availability of the University Hazard Communication program, Hazard Communication Manual, Chemical Inventory (CEMS), and applicable SDS,
- The nature and potential health and safety risks of hazardous substances to which employees are exposed to during their employment.
- Proper handling procedures, including use of personal protective equipment (PPE), for hazardous materials to which they are exposed in the course of their employment.
- Appropriate emergency treatment for exposures and procedures for leaks and spills; and
- The location of hazardous chemical containers present in their workplace.

Manager and Supervisors are expected to offer refresher training as necessary, to train new employees, and to train on new products as required. Following the training, each affected employee is required to demonstrate an understanding of the trainings specified above, as well as the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

Employees are required to be retrained when there is reason to believe that they do not have the required understanding and skills outlined above. Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

Retraining is required when changes in the workplace, process, or types of PPE to be used render previous training obsolete.

Departments are required to document department specific training for each employee and maintain all training records. The [HAZCOM Site-Specific training checklist](#) may be used to document the training.

EHRS will maintain a record of the general hazard communication training provided through EHRS.

## **VII. NON-ROUTINE TASKS**

When employees are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, cleaning chemical spills), training will be conducted to inform employees of the hazardous chemicals they may be exposed to and the proper precautions to take to control exposure.

## **VIII. CONTRACTOR WORK**

Any contractor hired by Temple University (TU) will be informed by the contracting department of any chemical hazards present, which its employees may encounter during the term of the contract.

The contracting department is required to ensure that the contractor adheres to all established safe work practices and university procedures. The contractor is required to inform the university, in advance, of all hazardous materials that will be used during a project. Safety Data Sheets (SDS) will be available for all hazardous products used. TU reserves the right to refuse the use of any product that poses an excessive risk or will require additional training of university employees.

## **IX. EMPLOYEE-OWNED CHEMICALS**

Employees may not bring hazardous chemicals to work without the approval of both the department and EHRS.

## **X. ANNUAL EVALUATION**

Managers, Supervisors and/or their designee are required to evaluate the Hazard Communication Program annually to make sure that:

- The latest revision of the university's written program and manual is implemented.
- Every hazardous product in use is listed in CEMS, and an SDS is available.
- The products and procedures evaluated in the hazard determination have not changed, or a new hazard determination has been performed.
- Employees have been trained on new hazards and procedures.
- New employees have received training.

## **XI. REFERENCES**

- US OSHA Hazard Communication 29 CFR1910.1200
- Temple University Hazard Communication Program Document

## APPENDIX A: Glossary

**Chemical:** Any *substance*, or *mixture* of substances. Exposure to chemicals can be in a variety of forms, such as solids, liquids, gases, dusts, mists, or fume

**CFR:** Code of Federal Regulations

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

**Hazard Category:** The division of criteria within each *hazard class* (e.g., oral acute toxicity and flammable liquids include for hazard categories). These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

**Hazard Class:** The nature of the physical or health hazards (e.g., flammable solids, carcinogen, oral acute toxicity).

**Hazard Not Otherwise Classified (HNOC):** An adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes.

**Hazard Statement:** A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

**Hazardous Chemical:** Any chemical which is classified as a *physical hazard*, or a health hazard, a *simple asphyxiant*, combustible dust, *pyrophoric gas*, or *hazard not otherwise classified (HNOC)*. For example, compressed gas is considered a physical hazard and wood duct is considered a health hazard.

**Health Hazard:** A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

**Label:** An appropriate group of written, printed, or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemicals, or to the outside packaging.

Mixture: A combination of a solution composed of two or more substances in which they do not react.

Personal Protective Equipment (PPE): Devices worn by the worker to protect against hazards in the environment. Examples include safety glasses, face shields, respirators, gloves, hard hats, steel-toed shoes, and hearing protection.

Physical Hazard: A chemical that is classified as posing one of the following hazardous effects: explosive, flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Pictogram: A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight mandatory Pictogram and one non-mandatory pictogram that are designed under OSHA standard for application to a particular *hazard category*.

Precautionary Statement: A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

Pyrophoric Gas: A chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130° F(54.4°C) or below.

Safety Data Sheet (SDS): Written or printed material concerning a hazardous chemicals that serves as an informational tool developed by chemical manufacturers containing the following information for a hazardous chemical: product identification, use restrictions, hazards identification, chemical ingredients, first-aid measures, fire-fighting measures, accidental release measures, handling & storage information, physical and chemical properties, stability and reactivity information and toxicological information. SDS are in a standardized 16-section format and can be obtained for the chemical suppliers and many internet sites.

Signal Word: A word used to indicate the relative level of severity hazard and alert the reader to a potential hazard on the *label*. The signal word used in this section are “danger” and “warning”. “Danger” is used for the more severe hazards, while “warning” is used for the less severe.

Simple Asphyxiant: A substance or mixture that displaces oxygen in the ambient atmosphere and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Substance: Chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Trade Secret: Any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

Use: To package, handle, react, emit, extract, generate as a byproduct, or transfer.