

Chemical Inventories

University of Tennessee Safety Procedure EC-004

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Purpose, Applicability, and Scope

Purpose – The purpose of this procedure is to provide a framework for those individuals on campus who are in possession of hazardous substances which must be inventoried and disclosed on a regular basis. A list of regulatory agencies that require a chemical inventory is listed below.

Applicability – This shall apply to all students, staff and faculty on the Knoxville campus of the University of Tennessee.

Scope – This standard applies to all hazardous substances as defined in below.

Abbreviations and Definitions

Abbreviations

CAS – Chemical Abstract System

CIMS – Chemical Inventory Management System

CFATS – Chemical Facilities Anti-Terrorism Standard

CFR – Code of Federal Regulations

EHS – Environmental Health and Safety

EPCRA – Emergency Planning and Community Right to Know Act

NPDES – National Pollution Discharge Elimination Standard

OSHA – Occupational Safety and Health Administration

SARA – Superfund Amendments and Reauthorization Act

SDS – Safety Data Sheet

Definitions

Hazardous substance – Any substance that is capable of causing an acute or chronic health condition in humans, or adversely impacts the environment. Substances that are considered physical hazards (flammable substances, explosives, shock sensitive, etc.) are included in the definition of a hazardous substance. The OSHA Hazard Communication Standard (29 CFR 1910.1200) and the OSHA Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450; also known as the OSHA Laboratory Standard) are the two main standards that define a hazardous substance.



The following are considered hazardous substances and must be **included** in the chemical inventory:

- Compressed gas cylinders and lecture bottles
- Cryogenic materials
- Flammable liquids or solids
- Corrosive liquids or solids
- Organic peroxides
- Oxidizing material
- Carcinogens, mutagens, or teratogens
- Toxic or poisonous materials
- Environmental toxins
- Inhalants, controlled substances, or other drugs with hazardous properties
- Reactive solids or liquids (pyrophorics, air/water reactives, etc.)
- Explosive materials
- Any other hazardous substance not excluded by the following section.

The following substances are **excluded** from the chemical inventory:

- Consumer products (e.g. cigarette lighters) in the workplace that contain hazardous materials and are for personal use
- Prescription and over-the-counter medication taken by personnel
- Substances containing less than 1% of hazardous material (less than 0.1% carcinogens)
- Hazardous waste
- Biohazards
- Radioisotopes
- Hazardous materials (gasoline, oil, anti-freeze, etc.) found in University- owned or private vehicles and considered integral to the vehicle's operation
- Hazardous materials that are part of the building (e.g. lead paint) or contained in an article (e.g. furniture)
- Non-hazardous substances (e.g. water, agarose, sand, glass beads, etc.).

Chemical User – Any department, worksite, or group that handles hazardous substances on university property or that engage in university-sponsored offsite activities. Chemical users can manage chemical inventories for a single area or for multiple areas.

Roles and Responsibilities

Chemical users shall:

- Update their chemical inventory through the Chemical Inventory Management System (CIMS) at least annually, preferably prior to the annual site safety review. Updating the inventory as chemicals are received, used up, or disposed as hazardous waste is strongly encouraged. The CIMS will be accessible through the EHS website located at <https://ehs.utk.edu/>.
- Ensure that every individual working with hazardous substances has access to the current chemical inventory, either electronically (e.g. CIMS access) or in hard copy.

Department heads shall:

- Communicate and enforce chemical inventory requirements to departmental chemical users.
- Assign a responsible individual(s) for departmental chemical inventory management. Where applicable, each unit within a department (e.g. laboratory, core facility, etc.) shall maintain the inventory for their assigned space(s).
- Ensure that departmental chemical users submit an updated chemical inventory on an annual basis.
- Ensure new chemical users who purchase or bring hazardous substances to the University complete a chemical inventory within 30 days of the arrival of the substance on campus.
- Report any concerns regarding chemical inventory management to EHS.

EHS shall:

- Provide a CIMS for submitting and maintaining chemical inventories. The IMS shall be capable of:
 - Sending electronic reminders to update chemical inventories.
 - Providing a cloud-based platform to manage chemical inventory data.
 - Providing a user sign-on utilizing UT NetID and password.
 - Developing custom reports of inventory data.
 - Maintaining the security of chemical inventories and related information.
 - Providing relevant and accurate hazard information for each chemical entered into the database.
- Review the chemical inventory for each site prior to the annual safety review. Sites with an outdated chemical inventory will be prompted to update accordingly.
- Serve as a technical resource for questions and comments regarding chemical inventories or CIMS.
- Provide ready access to chemical inventories during an emergency (accidental release).
- Develop, review, and submit reports to regulatory agencies as required (e.g. CFATS).
- Review, update, and communicate chemical inventory procedures as necessary.

Procedures

1. Chemical users must update their chemical inventory in the CIMS at least annually, preferably prior to the annual site safety review. Guidelines for completing and updating the inventory are located on Canvas and through the EHS website at <https://ehs.utk.edu/>.
 - a. A missing or outdated inventory will be noted as a finding on the inspection report.
 - b. Chemical users who no longer possess hazardous substances should indicate this in the CIMS and inform EHS as soon as possible.
2. The following information must be included in the chemical inventory:
 - a. Chemical name and/or CAS#:
 - i. Spell out chemical names rather than using abbreviations or formulas.
 - ii. For brand name products, list the product name or common description (e.g. WD-40).
 - iii. Mixtures generally do not have a CAS# associated with them. If a CAS# is assigned to a mixture (generally a dilution that changes the hazard), then it is to be noted in the CIMS. CAS#s for hazardous ingredients in a mixture (typically noted on the SDS) also need to be noted.
 - iv. Mixtures, buffers, and reagents prepared onsite by chemical users should not be included (i.e. only the stock chemicals need to be entered into the CIMS).
 - b. Quantity and units for each container (relevant volume or mass in English or metric units):

- i. The quantity of substance should be expressed in units that are typical of that physical state. Examples: liquids (gallons, quart, liters, milliliters); solids (pounds, kilograms, milligrams); gases (cubic feet).
 - ii. For simplicity, it is permissible to enter the amount of hazardous chemical listed on the container at the time it was purchased as opposed to the actual volume or mass. This amount only needs to be changed if the substance is used up and the replacement container is a different size.
 - iii. The volume of compressed gases may be listed as the number of cubic feet of gas that the cylinder originally held when filled.
 - c. Number of containers
 - d. Location (building and room number). If a substance is moved periodically between several rooms or locations, choose the room or location in which the substance is most often used.
 - e. Content identifiers, e.g. concentration, percent by volume, etc., as appropriate
 - f. Optional/user's discretion-descriptive information, e.g. lab location (shelf, bench, cold room, etc.), manufacturer, catalog #, etc.
3. Consult the chemical's SDS to determine if a substance is hazardous or contains hazardous components. If the SDS does not provide clear information, contact EHS.
 4. Contact EHS regarding chemicals that are proprietary. In general, EHS will seek to include the hazard class (e.g. flammable liquid), but not the exact substance where confidentiality must be preserved.

Recordkeeping

Starting in 2008 the University's central archived chemical inventories shall be kept for at least 30 years. These records may be kept in electronic or hard copy form.

EPCRA reports generated from chemical inventories shall be kept at least three years.

Training and Information Requirements

EHS shall provide information to chemical users about this procedure, applicable regulatory references and the CIMS as necessary. Information will be communicated in writing via email, listserv posts, CIMS-routed postings, etc.

Regulations and References

The following regulations and agencies require a chemical inventory directly or indirectly:

- State Fire Marshal's office (NFPA 45, 2019 edition)
- Local Emergency Planning Committee (LEPC) – under SARA Title II
- Local Fire Department – under SARA Title II
- State Emergency Planning Commission – under SARA Title II
- OSHA Hazard Communication Standard (29 CFR 1910.1200)
- OSHA Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450)
- Knoxville Utility Board (KUB) – NPDES Permit System

Appendices

None

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