

<p>Carnegie Mellon University Environmental Health & Safety FIRE LAB WORK</p>	<p>Environmental Health and Safety Reproductive Toxins - Guideline</p>
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1. Purpose

Carnegie Mellon University strives to provide employees with a safe and healthful work environment. The mission of Environmental Health and Safety (EHS) is to support the University's mission and values by sustaining and enhancing a safe and healthy environment for the CMU community.

2. Scope

This guideline provides information for the safe use of reproductive toxins. It applies to Carnegie Mellon University faculty, staff, and students engaged in the storage or use of such materials.

3. Objective

Reproductive toxins are chemical agents that have the potential to affect human reproductive capabilities including chromosomal damage (mutagens), sterility, miscarriages and effects on the fetus (teratogens). There are numerous references on reproductive toxicology but, unfortunately, no scientific or government agency has established a definitive method for classifying potential human chemical reproductive toxins as they have done for carcinogens. It is, therefore, impossible to give an exhaustive list of all chemicals that should be considered reproductive toxins. The [Particularly Hazardous Substance \(PHS\) Table](#) provides examples of chemicals known or suspected to be human reproductive toxins, such as:

- Arsenic and arsenic compounds
- Benzene
- Cadmium and Cadmium compounds
- Ethidium Bromide
- Lead compounds (inorganic)
- Mercury Compounds

[Safety Data Sheets \(SDS\)](#) should be consulted to determine whether chemical agents or products containing those agents are human reproductive toxins. Agents or products containing those agents that are classified as Categories 1A or 1B based on Globally Harmonized System of Classification and Labelling of Chemicals (**GHS**) should be treated as reproductive toxins.

For pregnancy information related to working with radioactive materials, please consult the [Radiation Safety Plan](#).

4. Roles and Responsibilities

- a. Carnegie Mellon University EHS is responsible for:
 - i. Developing the written Reproductive Toxin Safety Guidelines and revising as necessary;
 - ii. Completing hazard assessment and reviewing SDSs prior to purchasing new chemicals with the potential to be reproductive toxins;
 - iii. Recommending engineering controls, administrative controls and personal protective equipment;
 - iv. Providing guidance to employees, as appropriate, and;
 - v. Conducting inspections at least annually to ensure the proper use of reproductive toxins.
- b. Departments will be responsible for:
 - i. Understanding and complying with the requirements of this guideline;
 - ii. Identifying alternate job duties or temporary reassignment within the department, if indicated by the user's licensed healthcare professional; and
 - iii. Contacting [EHS](#) if assistance is needed.
- c. Users will be responsible for:
 - i. Completing [Lab Safety and Hazardous Waste training](#) prior to initial use;
 - ii. Complying with the procedures outlined in this Guideline;
 - iii. Contacting EHS prior to obtaining chemicals with the potential to be reproductive toxins and assisting in the hazard assessment;
 - iv. Purchasing reproductive toxins in accordance with the EHS "[Hazardous Materials Purchasing Guideline](#)";
 - v. Ensuring that a current SDS for the reproductive toxin is obtained/available and reviewed
Completing a "[Particularly Hazardous Substances \(PHS\) Procedure Protocol Form](#)" for each reproductive toxin being used;
 - vi. Submitting "Permission to Work Alone Forms" when activities conducted are covered under the EHS "[Working Alone in Research Laboratories, Shops, Studios and Work Areas Guideline](#)";
 - vii. Maintaining a clean and hygienic work area in rooms where reproductive toxins are housed;
 - viii. Maintaining a clean and hygienic work area in rooms where reproductive toxins are housed; and
 - ix. Informing the supervisor of concerns relating to reproductive health and engaging in reproductive health counseling when needed.

5. Exposure Controls

- a. Engineering Controls
 - i. All work with reproductive toxins with the potential to create exposure via inhalation must be done in a designated area of a laboratory inside of a properly functioning chemical fume hood.
 - ii. In some cases, a functioning glove box may be required when working with reproductive toxins.

- iii. Reproductive toxins may not be handled or stored in a room with recirculating exhaust and the room should have a minimum of six (6) air changes per hour (ACH).
- b. Administrative Controls
 - i. Consult SDSs for hazard and exposure information for all reproductive toxins.
 - ii. Each reproductive toxin container's label must include an appropriate pictogram. In the event the container's label does not include an appropriate pictogram, contact [EHS](#) for guidance.
 - iii. Designated use and/or storage areas must be selected for reproductive toxins. These use or storage areas must be identified by a "Caution: Reproductive Toxin in Use or Storage" signage. Reproductive toxin signage can be obtained through [EHS](#).
 - iv. Containers of reproductive toxins must be stored in a leak-proof secondary container.
 - v. The secondary container's label used to store reproductive toxins must include an appropriate pictogram and identify the material as a reproductive toxin. Pictogram and reproductive toxin labels can be obtained through EHS
 - vi. Door signage for the laboratory must contain a "Designated Area" identifier.
 - vii. Newly received packages of reproductive toxins should be transported through buildings in the same packaging designed for interstate transport. Containers destined for storage should not be unpacked until they can be transferred to appropriate storage area. Materials should be unpacked for use and then transferred to a dry box or a chemical hood and used as instructed.
 - viii. Keep containers securely sealed when not in use.
 - ix. Thoroughly clean the immediate and adjacent work areas following use of reproductive toxins with a paper towel and water.
 - x. When weighing dry powder reproductive toxins, open balances should be moved to the fume hood when practical and feasible. If not, an additional risk assessment is required to determine the need for respiratory protection.
 - xi. Wash hands thoroughly with soap and water after handling any chemical and prior to leaving the lab.
- c. Training
 - i. Laboratory Safety and Hazardous Waste training must be completed by all lab personnel using reproductive toxins prior to initial use and every three years thereafter.
 - ii. For additional information on training, please visit [the CMU EHS Training Directory](#).
- d. Personal Protective Equipment (PPE)
 - i. Eye Protection
 - 1. Safety goggles must be worn when working with reproductive toxins.
 - ii. Gloves
 - 1. Gloves compatible with each material must be worn when working with reproductive toxins. In some cases, double-gloving may be required.
 - iii. Other
 - 1. Lab coats, closed toed shoes, and clothing that covers the entire leg surface must be worn when working with reproductive toxins.

6. Reproductive Health Counseling

Impacted users are encouraged to consult with their licensed health care professional regarding concerns with working with reproductive toxins. Additionally, contact [EHS](#) to review information on the following:

- a. The potential for exposure to reproductive toxins.
- b. Recommended work practices and personal protective equipment to eliminate or minimize exposure.
- c. SDS review for the chemicals handled by the employee.
- d. OSHA exposure limits.
- e. Review of available toxicity data.

7. Disposal

- a. Reproductive toxins and items contaminated with reproductive toxins must be properly disposed of through the University's chemical waste program. This includes, but is not limited to, the empty container, solvent rinses and water rinses. Please visit [the EHS Hazardous Waste Management website](#) for more information.
- b. Incompatible waste chemicals must be segregated in waste storage containers (e.g. solvents and acids).

8. Emergency Procedures

- a. Personal Injury or Contamination
 - i. For eye contamination, flush with an eyewash for 15 minutes. Contact University Police at (412) 268-2323 and EHS at (412) 268-8182.
 - ii. For localized skin contamination, wash the impacted area with soap and water. Contact University Police at (412) 268-2323 and EHS at (412) 268-8182
 - iii. For widespread contamination, remove contaminated clothing and shoes and flush body with an emergency safety shower. Contact EHS at (412) 268-8182 and University Police at (412) 268-2323.
- b. Small Chemical Spills
 - i. Alert people in the immediate area of the spill.
 - ii. Avoid breathing vapors from the spill.
 - iii. Wear protective clothing and gloves when addressing spills.
 - iv. Confine spills to a small area.
 - v. Use the chemical spill kit to clean the area.
 - vi. Collect the residue, place in labeled container and contact [EHS](#) for disposal as hazardous waste.
- c. Large Chemical Spills
 - i. Alert people in the immediate area of the spill.
 - ii. Attend to your own needs first and then assist injured or contaminated people.
 - iii. Control the spread of contamination if safe to do so.
 - iv. Keep people away from the location.

- v. Stop work, turn off equipment and close doors as you exit.
- vi. Evacuate to a safe location.
- vii. Contact University Police at (412) 268-2323 and EHS at (412) 268-8182.
- viii. Remain safely in the area to inform emergency responders of:
 1. Number and extent of injured people;
 2. Name(s) of chemicals involved and volume; and
 3. Hazards associated with the material(s).

9. Revisions

Date	Documented Changes	Initials
1/19/2024	Reviewed – no revisions necessary	AL

For additional questions or concerns please contact [EHS](#).