



Reproductive Toxins Fact Sheet


This fact sheet is for general safety awareness. Individual Standard Operating Procedures for all experiments and processes involving reproductive hazards must be developed by the laboratory.

PROPERTIES & HAZARDS

Reproductive toxins are substances that have adverse effects on male and/or female reproductive systems. Embryotoxins, teratogens, or mutagens can cause malformations or death of an embryo or fetus. These toxins affect reproductive capabilities including chromosomal damage and produce mutations in developing fetuses. This can manifest as birth defects or miscarriage. Men may experience sterility or changes in sperm production.

Adequately control exposure to these toxins throughout the stages of family planning as exposure could have major impacts on fertility, gestation, and lactation. Embryotoxins cause the most damage during the first trimester of pregnancy (<12 weeks). Because one may not know that one is pregnant during this period of high susceptibility, be especially cautious when working with these toxins.

There are three categories for reproductive toxins, Category 1A, 1B and 2, that you may see on safety data sheets (SDS) or on a chemical bottle. In Section 2 – Hazard Identification of the SDS, a combination of the following hazard classifications, pictograms and hazard statements will be listed indicating a reproductive hazard. More information on material hazards can be found in complete hazard statements.

Hazard Classification and Category	Pictogram	Hazard Statement
Toxic to Reproduction – Category 1A, 1B and 2		May damage fertility or the unborn child Suspected of damaging fertility or the unborn child May cause harm to breast-fed children

PARTICULARLY HAZARDOUS SUBSTANCES

The Occupational Safety and Health Administration defines particularly hazardous substances as select carcinogens, reproductive toxins and substances which have a high degree of acute toxicity. Work with particularly hazardous substances requires special provisions for employee protection. Materials designated as particularly hazardous substances include reproductive toxins. The following is required when working with chemicals having these designations:

1. Prior approval required from PI before use.
2. Establishment of a designated area
3. Use of containment devices
4. Procedures for safe removal of waste

These items should be addressed in your lab’s procedure-specific standard operating procedures that require use and handling of reproductive toxins.

CONTROLS

Selection of controls should be made using a risk-based approach that considers the degree of hazard, route of exposure, and characteristics of the process that may potentially lead to exposure. If you need help selecting controls for a given procedure, contact ESSR for assistance.

Engineering Controls

- Chemical fume hood or glovebox-Chemical fume hoods and gloveboxes provide the best protection against exposure in the laboratory. Generally, chemical fume hoods are the preferred ventilation control device in laboratories unless a glovebox is warranted. Handle reproductive toxins in a fume hood or glovebox.

Personal Protective Equipment

- Double Gloves – Generally, nitrile or neoprene provide adequate protection against minor splashes for most chemicals. Consult glove manufacturer's chemical compatibility guides for best glove selection, or alternative glove types if needed for specific chemicals that penetrate nitrile or neoprene. SDS recommendations on glove type should be reviewed.
- Splash goggles
- Lab Coat
- Clothing that leaves no exposed skin on legs or feet
- Closed-toe shoes that fully cover the top of the foot
- Chemical Resistant Apron*
- Face Shield*

**For work with large volumes of reproductive toxins and/or when pouring.*

STORAGE

- Reproductive toxins should be stored in a secure, designated area. This designated area must be approved by the principal investigator.
- Always store reproductive toxins in compatible, unbreakable secondary containment.
- Reproductive toxin chemicals should be stored in containers with a screw-top lid.
- Storage location must be consistent with storage recommendations on the chemical's Safety Data Sheet.

USE

- The principal investigator must approve any purchase or procedure involving reproductive toxins.
- If possible, substitute reproductive toxins with a chemical without reproductive toxicity.
- When possible, minimize the quantity of reproductive toxin used.
- Only use reproductive toxins in a designated area approved by the principal investigator. For example, use tape labeled with material hazard to tape off the designated area where it is used. All lab workers should be aware of where the designated area is and that they are used for work with reproductive toxins.
- Keep containers closed as much as possible.
- When weighing out solid reproductive toxin chemicals, use the tare method. In this method, the chemical is added to a pre-weighed container in a chemical fume hood. The container is then sealed and re-weighed outside of the hood. If chemical needs to be added or removed, this manipulation is carried out in the hood.
- Change gloves immediately if they have suspected contact with the chemical.
- Everyone working with reproductive toxins must be aware of any applicable signs and symptoms of exposure if they exist.
- The work area should be thoroughly cleaned and decontaminated after work is complete. Decontamination procedures will vary by chemical.
- Thoroughly wash hands after handling any amount of a reproductive toxins.

WASTE

- Waste should be managed so that incompatible materials are not mixed.
- Waste containers should be compatible with their contents and should be segregated by hazard class into separate secondary containers.
- For questions regarding waste management contact ESSR, Environmental Affairs at envaffairs@umd.edu.

SPILL CLEANUP

- Spill cleanup must follow the items specified in the Emergency Response Guide posted in the laboratory.
- If the laboratory is equipped and personnel are trained, minor spills can be handled by laboratory personnel.
- If a spill is beyond the capacity of the laboratory to address, call (301) 405-3333 from a safe location.

REFERENCES AND ADDITIONAL RESOURCES

1. OSHA [A Guide to the Globally Harmonized System of Classification and Labeling of Chemicals \(GHS\)](#)

2. OSHA [Occupational Exposure to Hazardous Chemicals in Laboratories](#)
3. [Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards](#), National Academy Press, Washington, DC, 2011