

CARCINOGENS, REPRODUCTIVE TOXINS AND ACUTE TOXINS

Also Known as OSHA “Particularly Hazardous Substances”

STANDARD OPERATING PROCEDURE

Type of SOP: Process Hazardous Chemical Hazard Class

Department: _____ Building: _____ Room #: _____

Principal Investigator: _____ Phone #: _____

Prepared By: _____ Email: _____ Date: _____

1. HAZARD OVERVIEW

This SOP deals with three classes of related materials:

- reproductive toxins
- acute toxins
- select carcinogens



Reproductive Hazards & Carcinogens



Acute Toxin

Although the mechanism/target of their toxicity may vary, they are similar in that they generally don't present a physical hazard (fire, explosion, high reactivity). Their primary hazard is their long-term or acute toxicity - most commonly via inhalation or skin contact. Therefore, the engineering controls and personal protective equipment used to protect an individual are generally the same for these substances. These materials are denoted by OSHA as **Particularly Hazardous Substances (PHS)**. The individual Safety Data Sheet for a particular material should always be consulted before beginning work.

Definitions and Hazards of PHS

Select Carcinogens are a category of chemicals where the available evidence strongly indicates that the substances cause human carcinogenicity. A “select carcinogen” meets one of the following criteria.

- It is regulated by OSHA as a carcinogen
- It meets certain OSHA definitions of carcinogenicity as used by the National Toxicology Program or the International Agency for Research on Cancer.

Reproductive Toxins are chemicals that affect the reproductive capabilities including causing chromosomal damage (mutations), adverse effects on fetal development (teratogenesis), infertility, gestation/pregnancy, lactation, genetic effects, general reproductive performance, and can affect both women and men. **NOTE:** Chemicals can have more than one associated hazard.

Acute Toxins are chemicals that pose a high/acute level of immediate health risk to individuals by skin contact, inhalation or ingestion.

Contact the EHS Department for more information about these materials, and for assistance in developing any further required standard operating procedures.

2. PERSONAL PROTECTIVE EQUIPMENT (PPE)

At minimum, complete protection of the eyes and skin is essential. Additional or more protective PPE may be required. Please refer to the NJIT Chemical Hygiene Guide and Hazard Assessment Form to determine the proper PPE for handling corrosive materials.



3. ENGINEERING/VENTILATION CONTROLS

Please review the NJIT Chemical Hygiene Guide and the Safe Chemical Fume Hood Use Guide for information on the proper use of a chemical fume hood and criteria for implementing engineering controls.

Chemical Fume Hood Glovebox Biological Safety Cabinet Other _____

Room Location of Unit(s): _____

4. SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

The above classes of materials have in common the fact that direct contact **must** be avoided. Careful handling and stringent controls are essential in order to minimize risk to lab workers and the environment. Therefore, the requirements outlined below must be followed rigorously.

- Never work alone with extremely hazardous materials.
- Eliminate or substitute for a less hazardous material when possible.
- Design your experiment to use the least amount of material possible to achieve the desired result.
- **Do not** exceed the scale or deviate from the experimental parameters which may be outlined in the **lab-specific information** section below without the approval of the Faculty/PI.
- Perform adequate hazard analysis and risk assessment before beginning the experiment. Refer to the NJIT Hazard Assessment Form.
- All hazardous materials must be labeled with their identity as well as all applicable warning statements. Manufacturer labels will contain all the necessary information. However, if material is repackaged or synthesized in the laboratory, please follow the protocols described in the Chemical Labeling section of the NJIT CHG.

NOTE: This standard operating procedure describes the baseline requirements for handling these classes of compounds. There are many cases where specific chemical entities require additional or modified handling procedures. Some examples are chemicals that have:

- Unique properties (e.g. cyanide salts, where the risk of exposure varies greatly over a range of pH);

- Multiple hazards related to them (e.g. azide salts, which have toxicity profiles similar to cyanide, but have the added hazard of being potentially explosive); or
- Extreme levels of a particular hazard (e.g. methyl mercury, which can penetrate the skin very quickly and cause death in extremely small doses).

These chemicals should have their own chemical specific standard operating procedure.

5. INCIDENTS AND ACCIDENTS

Laboratory personnel are to report all occupational injuries or illnesses to Faculty/PI as soon as practical. The Faculty/PI and laboratory personnel must submit the required paperwork to NJIT EHS Department. See the the Emergency Response Guidelines posted in the laboratory or Emergency Procedures section of the NJIT CHG for proper procedures involving an injury, exposure, fire, or release/spill of a hazardous material.

In the event of an emergency, DIAL 9-1-1 to activate emergency response personnel.

6. SPILL AND DECONTAMINATION

Wear proper PPE. Decontaminate equipment and bench tops using sodium bicarbonate and water, or other appropriate decontamination/cleaning solution. Dispose of all used contaminated disposables in the appropriate waste stream following the Waste Disposal Section of the NJIT CHG.

Decontamination Solution(s): _____

Additional Spill / Decontamination Requirements:

7. WASTE DISPOSAL

Follow the practices and procedures in accordance with the NJIT Laboratory Waste Management Program to properly dispose of waste.

Additional Waste Disposal Requirements:

8. PRIOR APPROVAL/REVIEW

9. DESIGNATED USE AREA

Designated Use Area Location(s): _____

10. SAFETY DATA SHEETS

Location of SDS: _____

11. LAB-SPECIFIC INFORMATION (required) ([Examples](#) of appropriate content)