



Laboratory Specific Standard Operating Procedures Development Information and Directions

Introduction:

The purpose of a laboratory specific Standard Operating Procedure (SOP) is to ensure that all affected individuals understand and work safely with highly hazardous chemicals, reproductive toxins, and carcinogens. This usually requires that additional precautions be taken beyond general laboratory safety rules and procedures that are described in the WHOI Chemical Hygiene Plan.

It is the responsibility of the Laboratory Supervisor/Principal Investigator in charge of a laboratory to ensure that an SOP exists and is consistently followed for operations involving highly hazardous substances. The Institution Chemical Hygiene Officer (Barbara Brill x2244) is available to provide assistance in developing these procedures.

Format:

When developing laboratory specific SOPs for highly hazardous chemicals, reproductive toxins, or carcinogens, use the two page form at the end of this document so that the format for laboratory specific SOPs can be standardized across WHOI and be easily shared among laboratories. The form also provides guidance on what parameters need to be considered.

When a laboratory specific SOP is completed please forward a copy to the Chemical Hygiene Officer (Barbara Brill x 2244). Electronic copies are preferred. Laboratory specific SOPs will be posted on the EH&S webpage in conjunction with the WHOI Chemical Hygiene Plan.

If two or more laboratories are conducting the same procedure, or one laboratory specific SOP is valid for multiple labs, the same procedure can be used. All laboratories using the laboratory specific SOP should be listed at the top of the form.

Directions:

To decide whether a laboratory specific SOP is required; consider all highly hazardous chemicals, reproductive toxins, or carcinogens and any serious physical hazards that may be inherent in the operation. Also consider any hazardous by-products, intermediates, or end products that may be produced.

To provide guidance in what must be considered, a list of generic considerations is attached to this direction sheet.

Completing the Form:

General Information:

- List the procedure or hazardous agent covered by the SOP
- Provide the current date in the revision date box
- List the departments or laboratories covered by the SOP. More than one department or laboratory can be covered by the same procedure if applicable.
- List the Supervisor(s)/Principal Investigator(s) responsible for the laboratory or laboratories
- The Supervisor(s)/Principal Investigator(s) must sign that they have reviewed and approved the SOP
- List the names and signatures of the Author(s) of the SOP
- If necessary, the Chemical Hygiene Officer will review and sign SOP

Specific Information:

Information required in this section may be collected from labels, Material Safety Data Sheets (MSDSs), reference resources (see Reference Sources section), or past experience:

- List notifications required prior to conducting the procedure (i.e., Supervisor/Principal Investigator or co-workers)
- Describe the hazards or toxicity presented by the chemical
- List exposure symptoms personnel should be aware of and methods they can use to detect hazardous levels of chemicals
- List engineering or containment devices that must be used (i.e., fume hoods, glove boxes, biological cabinets, restricted laboratories/laboratory sections, etc.)
- List personal protective equipment that must be used
- List special precautions or conditions (i.e., environmental controls, incompatible materials, restriction of entry, training, exposure time limits, etc.)
- List emergency response procedures – (i.e., medical response, spill containment information, fire containment, or shut-off or disconnect requirements)
- List decontamination or waste handling procedures

Standard Operating Procedure:

Based on the information collected in the previous section, provide a step-by-step description of the procedure and list precautions and/or safety hazards involved in each step.

Reference Sources:

- Occupational Safety and Health Administration (OSHA) Regulations and website
- National Institute for Occupational Safety and Health (NIOSH) website

- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV[®]) list and information
- Library Resources – There are a number of Databases available that provide medical and safety and health information.
- Supplier information/Technical Data
- EH&S Office
- Past experiences with the material or particular operation

Updates:

Laboratory specific SOPs should be reviewed on a periodic basis, and updates made when necessary. Updates should be made when there is any significant change in the procedure, when new chemical products or equipment are used, when new hazards are identified, or when safety precautions are determined to be inadequate.

Generic Standard Operating Procedure Considerations - Highly Hazardous Chemicals, Reproductive Toxins, and Select Carcinogens

Laboratories in which highly hazardous chemicals, reproductive toxins, and select carcinogens are used must develop specific standard operating procedures (SOPs) for the safe use of these materials. Listed are some general considerations that may need to be addressed when completing the SOP form.

- Obtain approval from the Lab Supervisor/Principal Investigator before ordering a chemical or conducting a procedure
- Order the smallest amount of the chemical required
- Keep compressed gas cylinders containing acutely toxic materials in ventilated gas cabinets (Contact Facilities for design and construction assistance)
- Ensure that all chemical containers are legibly labeled
- Review the container label and Material Safety Data Sheet of unfamiliar chemicals
- Isolate the laboratory or laboratory section where a chemical will be used and restrict the presence of non-essential personnel and traffic
- Post appropriate warning signs (e.g., DANGER; BIOHAZARD, AUTHORIZED PERSONNEL ONLY, etc.)
- Ensure that required engineering controls are available and in working order
- Wear appropriate street clothing. Prohibit shorts, short skirts, sandals, sneakers, and open-toed shoes when working with these materials
- Wear a lab coat over street clothes
- Ensure that all required personal protective equipment is available
- Determine disposition of waste and the need to filter or treat any fume hood discharge before conducting the procedure
- Ensure that all employees have received appropriate safety and health training including chemical hazard information, lab safety training, first aid, spill reporting, and use of engineering controls and personal protective equipment.
- Use appropriate engineering controls (e.g. fume hood, biological cabinet, glove box, etc.)
- Use coverings or trays to protect work surfaces from contamination
- Decontaminate work surfaces and equipment upon completion of procedure or at regular intervals for a procedure of long duration
- Store highly hazardous chemicals in a safe and secure location
- Dispose of waste materials in a safe manner

Laboratory Specific Standard Operating Procedure – Highly Hazardous Chemicals, Reproductive Toxins, and Select Carcinogens

Procedure/Hazardous Agent:	Revision Date:
Department(s)/Laboratories	
Supervisor(s)/Principal Investigator(s):	
Supervisor(s)/Principal Investigator(s) signature(s):	
Authors (names):	Signature(s):
Reviewed by CHO (signature):	

Special Notifications:
Hazard Description/Toxicity:
Special Detection Methods:
Engineering Controls:
Personal Protective Equipment:
Special Precautions/Conditions:
Special Emergency Procedures:
Decontamination/Waste Disposal:

Laboratory Specific Standard Operating Procedure: Provide a step-by-step procedure for the use of the highly hazardous chemical, reproductive toxin, or carcinogen. Include special provisions such as a designated area, use of engineering controls or containment devices, personal protective equipment, special warnings, decontamination procedures, etc. (Additional pages may be used.)