

Standard Operating Procedures Template for Highly Hazardous Chemicals

- Title of Procedure:
- Date:
- Date of Last Review:
- Principal Investigator:
- Lab Location:
- Lab Personnel who have reviewed SOP/Date:

Risk Assessment

Hazardous Chemicals: *(List chemicals used. Include chemical name, common name and abbreviation)*

Potential Hazard(s): *(Describe the potential hazards associated with the chemicals or the procedure.)*

Examples include:

- 1) *Chemical hazards such as carcinogenic, irritant, corrosive, acutely toxic*
- 2) *Reproductive hazards such as teratogens or mutagens*
- 3) *Allergies or chemical sensitivities that may be associated with the chemical*
- 4) *Physical hazards such as reactive, unstable, pyrophoric, implosion, exothermic, use of high energy equipment*

Routes of Exposure: *(As applicable, describe the potential routes of exposure associated with the procedure such as inhalation, injection, skin/eye contact)*

Exposure Limit: *(As applicable, list the Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV) of the chemical(s) if known)*

Quantity/Concentration Hazards: *(As applicable, describe if the quantity/concentration of the chemical(s) used increases the risk of exposure to the chemical.)*

Substitution of Less Hazardous Chemicals: *(As applicable, describe the potential use of less hazardous chemical substitutes)*

Control Measures

Personal Protective Equipment (PPE): *(List all applicable personal protective equipment needed for procedure)*

For example, describe use of:

- 1) *Gloves (what type)*
- 2) *Lab Coats, Suits, Aprons*
- 3) *Safety Glasses, Goggles, Faceshields*
- 4) *Respirators, Hearing Protection*
- 5) *Special Equipment (such as blast shields)*
- 6) *Other PPE*

Engineering Controls: *(As applicable, describe the engineering controls used for the procedure)*

Examples:

- 1) *Use of fume hoods or glove boxes*
- 2) *Special ventilation*
- 3) *HEPA filtered vacuum lines*
- 4) *Non-reactive containers*
- 5) *Temperature control*
- 6) *Bench paper, pads, chuks, plastic-backed paper*
- 7) *Special signage*
- 8) *Safe sharp devices*
- 9) *Other safety devices used*

Work Practice Controls: (As applicable, describe work practice controls used for the procedure)

Examples:

- 1) Designated areas(for highly toxic chemicals)
- 2) Performing procedure with at least two people present
- 3) Rotating workers
- 4) Restricting access; locks
- 5) Housekeeping

Monitoring: (As applicable, describe any monitoring needed for the procedure)

Examples:

- 1) Personnel exposure monitoring
- 2) Gas/spill release monitoring

Use in Animals: (As applicable, describe how the chemical will be safely used in animals)

Examples:

- 1) Dosing administration procedures
- 2) Animal restraining
- 3) Information on shedding/excretion of chemical
- 4) Aerosol suppression practices
- 5) Handling animals
- 6) Special cage handling/washing instructions

Cleanup/Decontamination Procedures: (Describe the process for cleaning the work area during and after the procedure.)

Storage Procedures: (Describe how and where the chemical will be safely stored)

Example:

Reviewing expiration dates on peroxide formers

Transportation Procedures: *(If the chemical will be transported on campus, describe procedure)*

Waste Disposal Procedures: *(Description of how waste will be disposed)*

Examples:

- 1) *Animals: include bedding, cages and carcasses*
- 2) *Chemicals*
- 3) *Radioactive*
- 4) *Sharps*

Emergency Procedures: *(Describe what procedures should be followed in the event of an emergency)*

Spills or Releases: *(Provide specific instructions on what personnel should do in the event of a spill or gas release. Include location of spill kits.)*

Fire: *(Provide specific instructions on what personnel should do in the event of a fire)*

Emergency Shut Offs: *(If applicable, describe procedures for shutting down equipment in an emergency)*

Signs and Symptoms of Exposure: *(Describe the specific signs and symptoms of an exposure to the chemical such as visual cues or odors)*

Exposures: *(Provide specific instructions on what personnel should do in the event of an exposure)*

First Aid: *(If first aid for exposure is available, describe procedure. If not, describe what steps should personnel take if injured.)*

Occupational Health Requirements: *(Describe any Occupational Health requirements necessary that are associated with the procedure. Examples include medical evaluation, baseline serum samples and respiratory fit testing)*

Material Safety Data Sheets (MSDS): *(Describe how personnel will access MSDS in the lab. Include a copy of the MSDS with this SOP)*

Training Requirements: *(Describe what training personnel must complete before using chemical/procedure. This training should be documented)*

Review of Procedure: *(Describe the frequency for reviewing the SOP document)*

Protocol:

Description of how to safely perform the experiment or operation.

