Laboratory Specific Standard Operating Procedures

TITLE: SOP for the safe use of Formaldehyde and Formaldehyde Solutions

Date: Review: Date Revised:

Principle Investigator:

Authors (Names):

Department, Building, Room(s):

Contact Phone Number:

This SOP must be kept on file for all laboratory employee training and review.

Section 1: (Check One)
There are three methods that can be used to write SOPs. They are: by process (distillation, synthesis, chromatography, etc.); by individual hazardous chemical (benzene, phenol, arsenic, etc.); and by hazardous chemical class (flammable, corrosive, oxidizer, etc.).

_____ Process ___X__ Chemical _____Hazard Chemical Class

Section 2: Describe Process, Hazardous Chemical or Hazard Class
This SOP presents guidelines and procedures for the safe use of formaldehyde (CAS # 50-00-0) and its solutions. In addition to use of this SOP, persons working with formaldehyde should be thoroughly familiar with general guidelines for high hazard chemicals identified in the High Hazard Chemical Policy (EHS 200.09) and all other applicable LSUHSC chemical safety policies. All current applicable MSDSs should be available and reviewed prior to use.

Section 3: Potential Hazards
Physical Hazards
- Colorless liquid, with a pungent odor.
- Moderate fire and explosion hazard when exposed to heat or flame.
- Incompatible with nitrogen dioxide, nitromethane, perchloric acid, and aniline.
- Peroxyformic acid yields explosive compounds.

Health Hazards
- Potential human carcinogen.

- Irritation of the eyes, nose, and throat (airborne concentrations above ~0.1 ppm) as a vapor. Severity of irritation increases as concentrations increase.
- Chemical burns to the eye(s) following direct liquid contact
- Dermal contact causes various skin reactions including chemical burns and sensitization.
- Sensitization may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.
- Toxic effects may result from chemical absorption

Section 4: Personal Protective Equipment

- Proper Laboratory Attire - pants or dresses/shorts below the knees, sleeved shirt, close-toe shoes)
- Lab Coat
- Eye/ Face Protection
  - Eye protection should be selected on potential for splash and exposure. At a minimum, safety glasses with side shields when only low splash hazard exists (eg. placing a tissue sample in a container). Goggles should be worn if using or transferring larger quantities.
  - If there is a high risk of a splash hazard, a full face shield should be worn.
  - Ordinary (street) prescription glasses do not provide adequate protection.
- Hand Protection
  - Use disposable nitrile, neoprene, natural rubber or PVC gloves during all tasks
  - Laboratory personnel should thoroughly wash hands with soap and water before and immediately upon removal of gloves.
- Respiratory Protection - If significant inhalation exposures are anticipated/suspected, contact EH&S (568-6585) for consultation.

Section 5: Engineering Controls

- All formaldehyde work must be done in a properly operating and certified laboratory fume hood.
- Work at least 6” inside of hood and set sash at lowest possible position

Section 6: Special Handling and Storage Requirements

- Store formaldehyde in cool, dry area away from strong oxidizing agents and bases.
- Only approved explosion-proof refrigerators should be used for cold storage
- Keep away from heat, flames, sparks, sources of ignition (including empty containers that will retain product residue)
- Transport in closed containers, in the smallest amounts necessary, and use aids such as carts, chemical transport carriers, etc.
- Keep containers tightly closed during storage.
- Specimens preserved in formaldehyde must be stored in ventilated cabinets.
- Access and use should be limited to appropriately trained and authorized lab personnel
- Mixing or dispensing should be done within a chemical fume hood. Dilute solutions (<4% formaldehyde) may be used on the bench top in small quantities.
- Wash hands thoroughly after use.

Section 7: Spill and Accident Procedures

- The availability, location, and contents of chemical spill clean-up kits must be confirmed prior to handling or beginning any work with formaldehyde.
- Immediately notify all lab personnel of spills (with the details of the spill and actions being taken) and regulate access, as necessary, to the area.
- Laboratory personnel should be prepared to respond to spills in accordance with the guidance provided in LSUHSC Chemical Spill Response Procedure (EHS 200.02).
- Spill volumes less than approximately one liter can be cleaned by lab personnel with assistance from EH&S by using absorbent pads (found in chemical spill kits) and placing in an appropriate waste disposal container.
- Spill volumes greater than approximately one liter shall be cleaned-by EH&S (personnel should immediately evacuate the area and contact LSUHSC Police for spills greater than one liter).
- Do not attempt to clean spills if you feel unsure of ability to complete safely.
- Personnel cleaning the spill shall, at minimum, wear the same PPE required for handling/use
- In the event of skin contact, immediately remove contaminated clothing and wash affected areas with soap and copious amounts of water.
- In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes and subsequently obtain medical attention.
- If inhalation produces excessive health symptoms, immediately relocate to fresh air and subsequently obtain medical attention.
- In the event of ingestion, obtain immediate medical attention. So not induce vomiting unless directed to do so by medical personnel.
- Report all spills, regardless of size, to laboratory PI, who will report to LSUHSC EH&S.

Section 8: Decontamination Procedures

- Where the eyes or body of any person may be exposed to formaldehyde, a safety shower/eye wash must be available for immediate use. Personnel must be aware of location of nearest Safety Shower/ Eye Wash and verify that a current certification of performance tag is present.
- Personnel shall rinse any formaldehyde exposed areas of skin and/or eyes with copious amounts of water for at least 15 minutes.
- All equipment, materials and work surfaces that have/ potentially have become contaminated with formaldehyde shall be thoroughly cleaned with soap water solution prior to storage and re-use.

Section 9: Waste Disposal Procedures

Formaldehyde waste is considered hazardous and must be disposed of in accordance with LSUHSC Chemical Waste Management Procedures (EHS 200.04).

Section 10: Laboratory Specific Protocol(s):

Attach laboratory protocol for specific handling and operational practices.