# Standard Operating Procedures for Paraformaldehyde Use in Animals

## #1 Scope of Work/Activity
State the process/operation/equipment that the SOP concerns.

Preparing ______ dilutions from stock/concentrated source vials. Injecting ______ solutions into live animals.

## #2 Specific Safety and Environmental Hazards
State the specific hazard and consequences if procedure not followed to person, environment, or property.


Routes of exposure: inhalation, ingestion, accidental injection, skin.

All tasks having potential for exposure (dose preparation, injection) are to be performed by trained staff and must have read the MSDS. Obtain SDS at [http://www.ehs.uci.edu/msds.html](http://www.ehs.uci.edu/msds.html)

Transport drugs in closed containers with a secondary unbreakable container.

Keep in a tightly closed container. Separate from oxidizing agents.

PI approval for initial use.

## #3 Engineering Controls
Describe any specific engineering controls which are required to prevent employee injury to hazards such engineered sharps, use of scavenger units for anesthetic gas waste.

Use inside a fumehood or vivaria downdraft table

Procedures that may generate aerosols must be conducted inside a fume hood.

Both fume hood and down draft table should have markings indicating the equipment has been certified within the last 12 months. If an exhausted enclosure is not available, appropriate respiratory protection is required. Contact EH&S for assistance.

Know location of closest eyewash/shower.

## #4 Designated Area
Indicate the designated area for performing this process in the laboratory.

Handle only inside laboratory fume hood or down draft table.

A disposable plastic-backed absorbent pad should be used to protect work surfaces from contamination.
#5 Personal Protective Equipment (PPE): State the personal protective equipment selected and required. Examples: safety eyewear, work gloves, respiratory protection

Lab coat, nitrile gloves and eye protection should be used when working with paraformaldehyde. Respirator required if ventilation is not appropriate. If airborne exposures are suspected contact EH&S for consultation. Contact EH&S to obtain appropriate respirator.

For incidental contact, use disposable nitrile, neoprene, natural rubber or PVC gloves which cover hands and wrists overlapping sleeve of lab coat or disposable coverall; discard after use. For glove selection: [http://www.accessdata.fda.gov/scripts/cdrh/devicesatfda/index.cfm](http://www.accessdata.fda.gov/scripts/cdrh/devicesatfda/index.cfm)

- Change gloves every 30 minutes or when torn, punctured, or contaminated.
- Heavier gloves should be used when extended handling large amounts of material

Where splashes, sprays, or aerosols may be generated, goggles and faceshields may be necessary to prevent accidental contact with eyes, nose, or mouth. Adhere to strict hygiene controls.

Use N95 respirator if handling powdered material. Contact EH&S for respirator fit-testing prior to use.

#6 Important Steps to Follow: List the specific sequence staff should follow to avoid hazard.

Syringes for injection must be safety engineered (self-sheathing syringes). Animals should be restrained or sedated prior to injecting animals. Bench paper with impervious backing should be used during preparation of solutions to limit surface contamination.

#7 Emergency Procedures:

For skin exposure, remove contaminated clothing and wash skin with soap and water.

Eyes: Irrigate immediately for 15 minutes.

Ingestion: Refer to physician.

Inhalation: Remove victim to clean air. Contact 911 if difficulty in breathing. Refer to physician.

a. Report all exposures to supervisor within 24 hours.
   - Complete online incident report form at [www.ehs.uci.edu](http://www.ehs.uci.edu)
Control Procedures for animal care and housing requirements:

a. Will animals excrete toxic levels of chemicals? _____
   - If so, identify waste streams under Section 9.

b. If ULAR staff will be handling animal care, explain any special handling procedures that may be required for bedding and cage handling, e.g., dust respirators, lab coats, etc.
   a. Lab coat or disposable clothing and N95 respirator, foot covering, goggles, and gloves should be used when handling contaminated bedding. Contact EH&S for respirator fit-testing prior to use.
   b. Ensure cages are labeled with a “Hazardous” cage card sign.

   ![Chemical Hazard Sign](image)

   c. Cage change after each drug administration to be done by trained animal researchers. The bedding is contaminated and requires special handling (see below).
   d. Animal care technicians to transport bags of soiled cages to a HEPA filtered dumping station that draws air away from user.

Identify waste stream and disposition of animal carcass, waste, and unused stock of chemicals
(Identify if waste is biohazardous, pathological waste, or hazardous chemical waste, etc.)
Please note that any drugs identified as a human carcinogen or poses a hazard to human health or environment because of its carcinogenicity must be managed as a hazardous chemical waste. Additional guidelines regarding hazardous chemical waste and pathological waste can be found at: [http://www.ehs.uci.edu/programs/enviro/](http://www.ehs.uci.edu/programs/enviro/)

- Surplus paraformaldehyde must be disposed of as hazardous chemical waste.
- Animal carcasses contaminated with drug must be disposed of in red bags as “pathology waste”.
- Collect rinsate as hazardous chemical waste.
- Disposable lab ware, bench paper, personal protective equipment, and cage bedding contaminated with drug must be disposed of as “pathology waste”. Obtain waste containers from EH&S.
- Sharps must be disposed of in “Sharps” container.
- At Irvine locations, utilize the on-line system for requests by requesting a “Chemical Waste” Pickup via the Internet:
At UCIMC locations, contact Andrew Kwon at kwongp@uci.edu or Erica Gonzalez at egonzal3@uci.edu for chemical waste pick up.
Decontamination and spill clean-up procedures.

Use appropriate PPE.

Absorb small liquid spill with absorbent paper. Wash work surfaces with soap and water. Dispose of waste through EH&S.

Pick up powdered material with wet absorbent paper. Do not sweep up dust. Do not inhale dust. Wash work surfaces with soap and water. Dispose of waste through EH&S.

Large Spills: Notify others in area. Evacuate room/immediate area. If splashed on an individual or in eyes flush for 15 minutes with copious quantities of water. Obtain medical attention. Call EH&S for HazMat response. Post area and prevent unnecessary entry until EH&S response team arrives. Provide assistance to EH&S as requested.

As the Principal Investigator, it is your responsibility to ensure that all individuals listed in this protocol is taught correct procedures for the safe handling of hazardous materials involved in this study. It is also your responsibility to assure that your personnel complete Laboratory Safety Fundamentals Training and Formaldehyde Safety training and any other applicable safety online training courses.

Both PI and all persons associated with the protocol must sign the following acknowledgement:

*I have read, asked questions, and understand the hazards of and safe working procedures for the activity/materials described herein.*

_________________________________________        DATE

PI Signature:

_________________________________________        DATE

Other Personnel:

_________________________________________        DATE

Name/ Signature

_________________________________________        DATE

Name/Signature

_________________________________________        DATE

Name/Signature

_________________________________________        DATE

Name/Signature