

UNTHSC Institutional Animal Care and Use Committee

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Title: Use of Gas Anesthesia Vaporizers and Scavenging Systems		
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A. BACKGROUND INFORMATION

- a. This Standard Operating Procedure (SOP) is to protect the health of personnel working with or near anesthetic gases used in laboratory animals. Exposures to high levels of anesthetic gases present a potential risk for adverse neurological effects, reproductive risk to exposed workers, or developmental anomalies in their offspring. Proper training and maintenance of waste anesthetic gas scavenging systems reduces these potential risks. According to the Guide for the Care and Use of Laboratory Animals, Eighth Edition (pg. 21), “Waste anesthetic gases should be scavenged to limit exposure.” This SOP will provide guidance for UNTHSC personnel working with gas anesthesia.

B. RESPONSIBILITY

- a. This Standard Operating Procedure (SOP) applies to all personnel using gas anesthesia for research animals. This includes, but not limited to, investigators, research personnel, and animal care staff.
- b. It is the responsibility of the PI to ensure that all personnel has access to this SOP
- c. It is the responsibility of all personnel using gas anesthesia to follow this SOP

C. PROCEDURE

- a. Anesthetic Training:
 - i. Prior to using anesthesia equipment, all personnel should receive training on the use of anesthesia equipment, as this is imperative to ensure the safety of the animals being anesthetized and the personnel in the area.
 - ii. Training is available through the DLAM staff. Alternatively, training can also be provided through the PI or experienced personnel on the protocol. Training should include the following:
 1. Properly setting up the equipment
 2. Checking for leaks
 3. Setting levels for induction and adjusting for maintaining anesthesia
 4. Use of scavenging equipment
 5. Animal monitoring.

- b. Safety Considerations:
 - i. Isoflurane must be used in a well-ventilated room (10-15 air changes/ hr.) with no recirculation of exhaust air. There must also be a mechanism in place for ventilating or scavenging to eliminate harmful exposure to the waste gases, such as a connection of the exhaust hose to a scavenging canister when using a precision vaporizer. Testing kits are available for purchase for checking scatter exposure.
 - ii. The following personal protective equipment (PPE) should be worn when handling the liquid form of the anesthetic gas:
 - 1. Gloves
 - 2. Safety Glasses
 - 3. Lab Coat
 - iii. If you are thinking of becoming pregnant or are pregnant, please have a consultation with the Safety Office.
- c. Vaporizer Equipment:
 - i. Laboratories using vaporizer equipment should maintain a current SOP for the manufacturer's directions on using the vaporizer.
 - ii. Vaporizing equipment should be calibrated on an annual basis. The vendor's calibration due date or date of calibration sticker must be attached directly to each vaporizer. For new vaporizer equipment, please contact DLAM, for it to be placed on the list for the annual calibration.
 - iii. Equipment with an expired calibration date must be labeled as expired, and not used until it is re-calibrated.
 - iv. Scavenging canisters must be stored in an upright position with the base raised to allow for proper airflow. Scavenging canisters must be labeled with the date received and its initial weight. The date and weight must be written upon the label after each use, and disposed of once it reaches 50 grams or more than its initial weight. To dispose of the canisters, place the used canister in a plastic bag prior to discarding it in the regular trash receptacle.
 - v. For more information, please refer to the Inhalant Anesthesia in Laboratory Animals training documentation provided by DLAM.
 - vi. For vaporizer equipment that is shared or placed in shared spaces, please label with the name of the individual responsible for the equipment and PI. DLAM may label equipment as "DLAM".

D. REFERENCES

- a. [Guide for the Care and Use of Laboratory Animals, Eighth Edition \(pg. 21\)](#)
- b. [Occupational Safety and Health Administration \(OSHA\) Anesthetic Gases: Guidelines for Workplace Exposures](#)