

Institutional Animal Care and Use Committee		UNTHSC
Title: Use of Gas Anesthesia Vaporizers and Scavenging Systems		
Document #: 049	Version #: 02	
Approved by IACUC Date: November 19, 2019		

A. BACKGROUND INFORMATION

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

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.

C. PROCEDURE

a. Anesthetic Training:

Training on the use of anesthesia equipment is imperative to ensure the safety of the animals being anesthetized and the personnel in the area. Training can be provided through the PI, experienced personnel on the protocol, or is also available through the DLAM staff. Training should include the following:

- Properly setting up the equipment
- Checking for leaks
- Setting levels for induction and adjusting for maintaining anesthesia
- Use of scavenging equipment
- Animal monitoring.

b. Safety Considerations:

When using isoflurane, it 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.

The following personal protective equipment should be worn when handling the liquid form of the anesthetic gas: Gloves, safety glasses, and lab coat.

c. Vaporizer Equipment:

A current SOP for the using the vaporizer according to the manufacturer's directions should be maintained. The vendor's calibration due date or date of calibration sticker must be attached directly to each vaporizer. Anesthetic vaporizers are calibrated annually. For new vaporizer equipment, please contact DLAM, for it to be placed on the list for the annual calibration.

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.

For more information, please refer to the Inhalant Anesthesia in Laboratory Animals training documentation provided by 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