

## **Gas Anesthesia Safety**

Gas anesthesia units are designed to deliver an accurate level of inhalant anesthetic in a controlled and safe manner to induce and reliably maintain an appropriate depth of anesthesia with minimal exposure to personnel. See IACUC Guidance **TAMU-G-003** and **TrainTraq course 2114681 Waste Anesthetic Gas (WAG) Awareness Training** from EHS for more information regarding the safe use of inhalant anesthetics.

All anesthetic vaporizers must undergo calibration verification and be serviced if necessary. If no manufacturer recommendation exists, the following schedules apply:

- Halothane vaporizers - Calibration must be performed annually.
- Isoflurane/sevoflurane vaporizers - Calibration must be performed at least every 2 years.
- If the machine is subject to extensive use or is frequently moved to different locations, then calibration must be performed annually.

A copy of the manufacturer's guidelines for calibration verification must be available in the laboratory.

Documentation of equipment validation must be affixed to each anesthesia machine or vaporizer that is in service.

### **To reduce personnel exposure:**

- Develop a lab SOP for safe gas anesthesia use
- Work in a well-ventilated space
- Place warning signage where occupational exposure can occur [Women of childbearing age should be aware that exposure during pregnancy is not recommended].
- Using properly fitting face masks, when directed by EHS
- Using appropriate personal protective equipment (gloves, lab coats, safety glasses)
- Label anesthetic gas appropriately
- Use keyed filler systems or bottle adapters with spouts and fill vaporizers when few people are around
- Use a reliable gas scavenging system, such as:
  - Dedicated exhaust system
  - Non-circulation ventilation system
  - Chemical fume hood
  - Adsorption devices, such as charcoal canisters must be properly placed and routinely weighed. For F-Air canisters this involves weighing the canister before and after use.
  - Contact EHS for proper disposal of the canister when there is a 50 g increase from the initial weight.

### **For Anesthetic Machines:**

- Leak-test equipment, where applicable
- Connect tubes and fittings properly
- Use appropriately sized endotracheal tubes and correctly inflate cuffs
- Use low fresh-gas flow rates
- Turn off the gas prior to removing animal from anesthetic machine
- Maintain oxygen flow until the scavenging system is flushed

### **For Open Drop Systems:**

- Use a chamber with a tight-fitting cover and the smallest diameter mouth possible
- Keep the lid on except when the animal is being placed into or removed from the chamber
- Ensure separation of the animal from the anesthetic (no direct contact with drug)

Questions or concerns about gas exposure, proper handling and disposal of anesthetic liquids, or other safety components should be directed to Environmental Health and Safety (EHS) at (979) 845-2132, [ehsd@tamu.edu](mailto:ehsd@tamu.edu).