

# Quick Reference Guide to Proper Isoflurane Handling and Use

## EXPOSURE LIMITS:

NIOSH recommends an exposure level of 2 parts per million (ppm) that should not be exceeded over a one hour period for anesthetic gases.

## POPULATIONS AT RISK:

NIOSH advises that pregnant workers avoid exposure to isoflurane.

While research in this area is lacking, exposure to anesthetic gases have been associated with adverse reproductive outcomes including: impaired fertility, miscarriage, low birth weight, preterm birth, and birth defects. There is enough evidence to suggest that avoiding exposure to anesthetic gases while planning to get pregnant or when pregnant is recommended. Long term exposure has also been associated with adverse reproductive outcomes in spouses of men exposed to anesthetic gases.

If you are using isoflurane in a shared room be aware of other individuals working in the room who may be exposed.



## BEFORE EACH USE:

1. Charcoal canister: weigh the canister and record in the log book. The canister should be numbered, insure you are logging the correct canister. If the canister has reached its expiration date or weight, properly dispose of the canister and replace it with a new canister. The new canister should be labelled with the next number, which is also recorded in the log.
2. Inspect all valves, hoses, chambers and connections for cuts, cracks and loose seals. Damaged parts should not be used, and must be replaced.
3. Make sure **input supply is connected to the bottom port** of the induction box and the **exhaust/return is connected to the top port** of the induction box.
4. Always wear eye protection, gloves and lab coat when filling the machine.

## WAYS TO REDUCE EXPOSURE DURING USE:

- ✓ Put as much of the machine as is feasible within the externally ventilated hood. In particular, nose cones, induction boxes and the charcoal canister should be within the fume hood or ducted BSC.
- ✓ Use a tracheal intubation to increase vapor recovery.
- ✓ Do NOT Use **latex or natural rubber delivery hoses**.
- ✓ The recovery canister should be situated horizontally when in use and the bottom ventilation holes unobstructed. Note: If you suspect waste gas is not being adequately scavenged with the canister\*
- ✓ **Turn off delivery when inhalant is not needed and when refilling vaporizer.**
- ✓ Consult with your RARC veterinarian to determine the **lowest functional flowrate** necessary to achieve anesthesia, supply sufficient oxygen to the patient and remove carbon dioxide from the system.
- ✓ Use a nosecone connected to an active exhaust ventilation (vented nosecone).

## AFTER EACH USE:

1. Make sure the gas delivery is **TURNT OFF**.
2. Weigh the canister and record in the log book. If the canister has reached its expiration date or weight, properly dispose of the canister by bagging and sealing in a plastic bag and place in the trash.
3. If replacing, number the new canister and record it's initial weight.
4. Place empty isoflurane bottles with the cap off into a ventilated hood until completely evaporated. Dispose in glass waste.
5. Note any issues encountered while using the isoflurane machine in the log book and contact the veterinary staff if machine needs servicing.

## CONTACT INFORMATION:

- **If you are pregnant or you or your partner are planning a pregnancy, contact EHS Occupational Medicine for a risk assessment for isoflurane exposure 265-5610.**
- **\*To get isoflurane monitoring done and establish potential exposure levels during your procedure, contact EHS Environmental and Occupational Health at 890-1992.**
- **To get fit-tested for a respirator effective for isoflurane contact EHS Occupational Medicine at 265-5610.**