

Principal Investigator: _____

Date Approved: _____

This document covers basic chemical safety information for anesthetics and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for anesthetics may also be required. The use of any acutely toxic gas is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE ANESTHETICS UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.

Anesthetics (Inhalant)

Inhaled Anesthetics are used in the laboratory setting to induce general anesthesia in animal subjects for the purposes of surgery or euthanasia. Common anesthetics include nitrous oxide and various halogenated agents. The most widely used halogenated agents include isoflurane (Forane®), desflurane (Suprane®), sevoflurane (Ultane®), halothane (Fluothane®), and enflurane (Ethrane®). Many of these substances are liquids at room temperature when pure, but when mixed with oxygen and vaporized become gaseous – resulting in increased inhalation hazards. Exposure to anesthetics and waste anesthetic gases (WAGs) may result in adverse neurological effects, reproductive problems in women, and developmental defects in the unborn fetus.



Personal Protective Equipment & Personnel Monitoring



Lab Coat

Traditional white lab coat. A barrier lab coat may be appropriate when biological hazards are present.



Gloves

Nitrile or neoprene gloves typically provide adequate protection against minor splashes.



Safety Glasses

ANSI Z87.1-compliant safety glasses.

Labeling & Storage

Store in a well-ventilated location below 30°C (86°F), away from heat, flame, and from other materials that may be chemically incompatible. Incompatibilities include: strong oxidizing agents, strong acids, strong bases, and alkali metals. Keep container tightly closed and locked up.

Engineering Controls, Equipment & Materials

**Fume Hood/
Biosafety Cabinet IIB2**

Use fume hoods or hard-ducted Class II B2 biosafety cabinet (BSC) whenever possible.

Active Scavenging

When a fume hood or appropriate BSC is not available, active scavenging devices can be used. These include exhausted induction chambers/surgery nose cones or snorkel trunks ducted to the building exhaust system. Do not use the house vacuum line for active scavenging unless approved by the Department of Environmental Health, Safety and Sustainability (EHSS).

Passive Scavenging

Charcoal canisters that adsorb used gas via positive pressure from equipment and the anesthetized animal's exhalation are also acceptable means of scavenging WAGs. Weigh the canisters regularly to monitor adsorption levels and prevent channels

from forming in the charcoal – these allow gas to enter the local atmosphere. Never place the exhaust side of the canister on a flat surface - this inhibits the flow of gas.

Housekeeping

Spills

Notify others in the area of the spill, including your PI/Responsible Safety Person. If it is a small spill that you can easily handle, use the contents of your lab spill kit to clean it up. If it is a large spill, then evacuate the area where the spill occurred. Call Vanderbilt University Public Safety (VUPS) at 615-421-1911 (mobile) or use the VandySafe app on your smart phone. Report any exposure through Risk and Insurance Management's Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHSS of the incident. Remain on site at a safe distance to provide detailed information to first responders.

Decontamination

Wipe residual liquid with absorbent pads and clean the area with soap and water. Dispose of the absorbent pads as hazardous chemical waste.

Waste

Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

First Aid & Emergencies

Skin or Eye Contact

Remove contaminated clothing and accessories; flush affected area with water. If symptoms persist, get medical attention.

Inhalation

Move person into fresh air. If symptoms persist, get medical attention.

Ingestion

Rinse mouth with water. If symptoms persist, get medical attention.

