



## **University of Michigan Policy On the Use of Ether as Anesthetic**

Ether has historically been used as an anesthetic agent, but several characteristics of this chemical compound have warranted restriction of its usage. Ether poses serious risks due to its flammability and explosive potential, and the National Institute for Occupational Safety and Health (NIOSH) classifies ether as a mutagen. With regard to humane animal use it induces anesthesia slowly, is highly irritating to the eyes and nose, and is actually used in some experimental paradigms to create a model of stress. For similar reasons, the *AVMA Guidelines for Euthanasia* has determined that ether is unacceptable as a method of euthanasia. The relative safety of isoflurane or sevoflurane for both people and animals makes them preferable to ether as an inhalant anesthetic. As such, it is the policy of U-M's Animal Care & Use Program that ether is not recommended as an anesthetic agent for animals.

**The IACUC has determined that the use of ether as an anesthetic requires prior IACUC approval and will only be approved when there is a unique and compelling scientific justification. In addition, the following safety considerations must be taken into account:**

- (1) Ether must be used in a chemical fume hood with proper exhaust ventilation.
- (2) Ether must be maintained in the smallest amount necessary for the ongoing work, and must be stored in airtight containers in a dark, cool and dry area.
- (3) Due to its peroxide-forming hazard, ether containers must be dated upon receipt and at the time they are opened.
- (4) Proper Personal Protective Equipment (e.g., chemical protective gloves (PVA, nitrile), safety glasses, lab coat) must be worn by all laboratory personnel when using ether.
- (5) Ether must be stored in appropriate flammable-liquid storage cabinets. Oxidizers, acids, and other incompatible chemicals must not be stored in these areas. Sources of ignition, such as surgical cauterizers, must not be permitted in or near the work and storage areas.
- (6) Ether-exposed carcasses must be stored in freezers and refrigerators made for the storage of flammable material.
- (7) Finally, Ether must be identified as a hazard on the animal use protocol and OSEH must be notified of any planned use. The University's [Chemical Hygiene Plan](#) must be adopted and implemented for its use.

### **References**

American Veterinary Medical Association Guidelines for Euthanasia 2013