



## Isoflurane Exposure Control Operational Guidelines

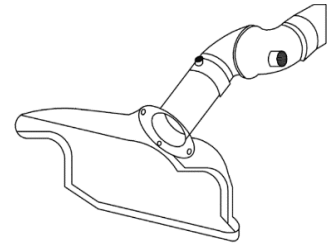
Use exposure control alternatives (in order of decreasing effectiveness):

a) Open induction chamber within, and exhaust the nose cone into, lab chemical fume hood (and not in recirculating biosafety cabinet).

b) Ensure active scavenging (using a pump or vacuum) through activated charcoal canisters (e.g., VetEquip V-1 Tabletop with Active Scavenging or house vacuum), from induction chamber and nose cone. *Otherwise, ensure that induction chamber is gasketed and latchable if used outside local exhaust ventilation.*



c) Position snorkel (e.g., Nederman FX-75) with rectangular hood (e.g., Nederman Combi hood) 3-6 inches – (i) above; (ii) angled 45% slightly behind; or (iii) with one edge on the benchtop to the side or back of – the nose cone and induction chamber:



(i) Typically connected to facility exhaust; or

(ii) Could be standalone unit (e.g., FilterMate Exhauster) equipped with integrated activated charcoal filter (replaced per manufacturer's specifications, e.g., every 6 months).



d) Consider downdraft table or plastic enclosure ("doghouse")

Maintain the effectiveness of the systems:

a) Weigh charcoal scavenging filter cartridge before first and every use. Do not block cartridge exhaust holes. [Weigh cartridge](#) and discard in regular trash when it gains 50 grams (or manufacturer's specification).



b) Confirm that the Isoflurane vaporizer is calibrated every year.





## Isoflurane Exposure Control Device\* Sourcing Information

If process conducted outside of a chemical fume hood or ducted biosafety cabinet, the following are:

### A. Minimum components of an active scavenging system:

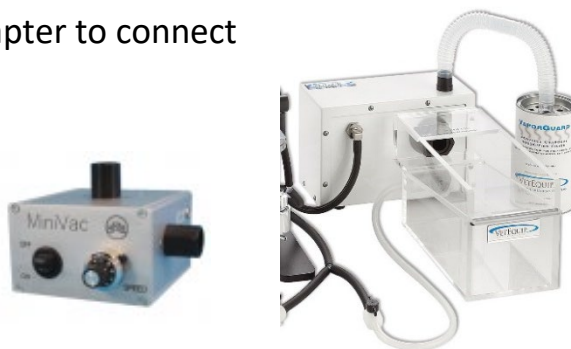
#### 1. An activated charcoal canister:

- a. [F/Air](#); or
- b. VetEquip [VaporGuard](#); etc.



#### 2. An active exhaust flow:

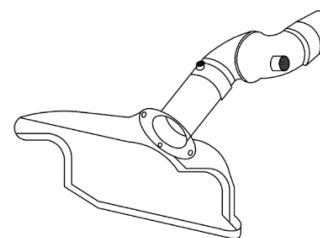
- a. House Vacuum – with F/Air canister<sup>1</sup> and adapter to connect to house vacuum system, and either:
  - i. [scavenging interface valve and kit](#)<sup>2</sup>; or
  - ii. a flow-controller such as a [rotameter](#)<sup>3</sup>.
- b. VetEquip [Scavenger Cube](#); or
- c. Harvard Bioscience [MiniVac](#); etc.



### B. For an added measure of exposure control: use

snorkel(s)/extraction arm(s) (e.g., [Nederman FX2-75](#)) with rectangular hood (e.g., Nederman Combi hood) positioned 3-6 inches – (i) above; (ii) angled 45% slightly behind; or (iii) with one edge on benchtop to side of – nose cone and induction chamber:

- a. Typically connected to facility exhaust; or
- b. Could be standalone unit (e.g., [FilterMate Exhauster](#)) equipped with integrated activated charcoal filter (replaced per manufacturer’s specifications, e.g., every 6 months).



<sup>1</sup> To protect maintenance personnel working near vacuum pumps in mechanical rooms.

<sup>2</sup> To automatically adjust the flow to prevent the test animal from inhaling what it exhales as well as ensure that the vacuum system doesn’t extract too much isoflurane from the nose cone.

<sup>3</sup> To manually adjust exhaust flow slightly above isoflurane/oxygen flowrate to maintain concentration of isoflurane within nose cone and induction chamber and resulting level of sedation.

\* Use the example equipment noted here, or equivalents. Examples of possible suppliers:

- Colonial Medical (VetEquip VaporGuard, Scavenger Cube and FilterMate Exhauster distributor)
  - 888-446-8427 or [susan@colmedsupply.com](mailto:susan@colmedsupply.com) (ask for Harvard pricing)
- Harvard Bioscience (double-ended F/Air canister, MiniVac distributor)
  - 774-270-2047 or [cjohnson@harvardapparatus.com](mailto:cjohnson@harvardapparatus.com)
- ACFM Corp (Nederman authorized distributor and ventilation contractor)
  - 978-534-5942 or [davidacfm@comcast.net](mailto:davidacfm@comcast.net)