



# Vapor-Clean - Malignant Hyperthermia Management

## Vapor-Clean Filters for MH-Susceptible Patients



Normal Circuit



Coaxial Circuit

### For MH-Susceptible Patients Ready in Under 90 Seconds

The internal components of modern anaesthesia machines capture and hold volatile anaesthetics which are released when the machine is used for a new patient. Even trace amounts of vapor can be harmful for susceptible patients. Previously, flushing the anaesthesia machine with high fresh gas flow for an extended time before a case was thought to help decrease the risk to susceptible patients. Now, in less than 90 seconds, Vapor-Clean activated charcoal filters reduce exposure to less than 5ppm of desflurane, sevoflurane and isoflurane molecules from reaching the patient for an entire case lasting up to 12 hours.

### Standardize Anaesthesia Machine Preparation for MH

- Compatible with all anaesthesia machines
- Two-year minimum shelf life
- Reduces costly operating room delays due to “surprise” MH-susceptible patients
- Negligible additional breathing circuit resistance
- No need to remove CO<sub>2</sub> absorbent
- Compatible with both standard two-limb and coaxial breathing circuits

### For an MH Crisis: Curtail Exposure to Volatile Agents Without Delaying Dantrolene

In the event of an MH crisis, physicians can quickly turn off the anaesthetic gas, place the Vapor-Clean onto the machine to curtail further exposure without delaying the administration of dantrolene, and without switching to manual ventilation. Without the Vapor-Clean, the time needed to replace the anaesthesia machine, or change the circle system and CO<sub>2</sub> absorbent can often delay the administration of dantrolene.

Product Code	Description	QTY
111AU	Vapor-Clean Filters	Box 3
101AU	Vapor-Clean Filters	Box 8
103	Adapter Vapor Clean Non Sterile Single Use	Pack 8



# Vapor-Clean - Malignant Hyperthermia Management

## Traditional Flushing Takes Longer Than You Think

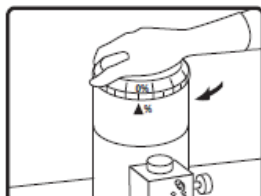
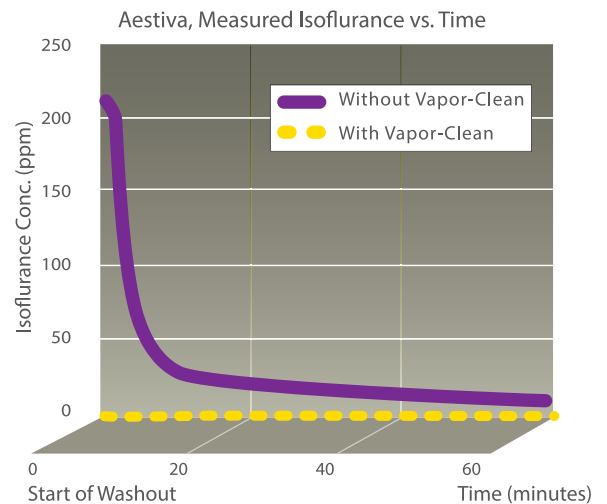
The table is a summary of published studies that show the extended periods of flushing needed without the Vapor-Clean filters before modern anaesthesia delivery systems can be used for MH-susceptible patients.

The data plot at right shows concentration of anesthetic vapor in an Ohmeda Aestiva anaesthesia machine after the machine was used to deliver isoflurane at 1 MAC for 2 hours. Without the Vapor-Clean, it took over 60 minutes of flushing the machine at 10 L/minute before the vapor emitted by the machine was safely below 5 parts per million. Under the same conditions, when using the Vapor-Clean filters, the machine was ready in less than 2 minutes.

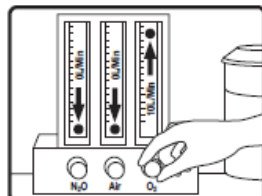
## No Rebound Effect with the Vapor-Clean

Patients are not exposed to a rebound effect as the Vapor-Clean filters block vapors for the entire case<sup>2</sup>.

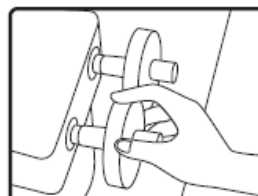
Workstation type	Anesthetic agent	Published washout time (time to inspired agent less than 5 parts per million)	Time to inspired agent less than 5 parts per million with Vapor-Clean filters
Ohmeda Aestiva	Isoflurane	54 minutes <sup>2</sup>	Less than 1 minute <sup>2</sup>
Ohmeda Aestiva	Sevoflurane	48 minutes <sup>2</sup>	Less than 1 minute <sup>2</sup>
Ohmeda Aestiva	Desflurane	27 minutes <sup>2</sup>	Less than 1 minute <sup>2</sup>
Draeger Apollo	Isoflurane	84 minutes <sup>2</sup>	Less than 1.5 minutes <sup>2</sup>
Draeger Apollo	Sevoflurane	46 minutes <sup>2</sup>	Less than 1 minute <sup>2</sup>
Draeger Apollo	Desflurane	53 minutes <sup>2</sup>	Less than 1 minute <sup>2</sup>
Draeger Primus	Isoflurane	64 minutes <sup>4</sup>	
Ohmeda Aestiva	Sevoflurane	55 minutes <sup>5</sup>	Less than 1 minute <sup>2</sup>
Draeger Fabius	Sevoflurane	104 minutes <sup>3</sup>	
GE Avance	Sevoflurane	61 minutes <sup>4</sup>	
Maquet Flow-i	Sevoflurane	48 minutes <sup>4</sup>	
GE Aisys	Sevoflurane	55 minutes <sup>4</sup>	



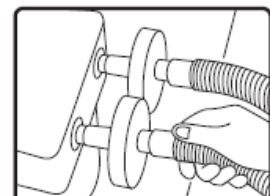
1. Turn off the anaesthesia vaporizer



2. Increase fresh gas flow to >10 L/min for at least 90 seconds to flush the vapor from the anaesthesia delivery system



3. Place one of the Vapor-Clean canisters on the inspired port of the anaesthesia machine and the other canister on the expired port of the anaesthesia machine.



4. Replace the breathing bag and connect a new breathing Circuit between the patient and the Vapor-Clean canisters. Maintain fresh gas flow at >3L/min.