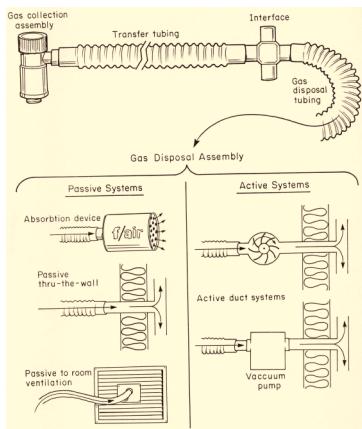


# AAS Guide: Managing WAG

What is Waste Anesthetic Gas? Typically less than half the inhalation Anesthetic supplied to a breathing circuit is absorbed by the patient. The excess gas (WAG) is pushed out of the "pop-off" valve, then through the ducting to the exterior vent point by the continual O<sub>2</sub> flow from the pressurised cylinder into the breathing circuit as well as the patients expiratory gas flow. The "pop-off" valve prevents this pressure build-up which would be detrimental to the patient. Theoretically WAG is "denser than air so sinks towards the floor". In the vapour phase volatile anaesthetics diffuse similarly to all gases and combined with the flow of room air from air-conditioning systems, the Anesthetic vapor is rapidly dissipated throughout the room. Therefore WAG should either be absorbed by activated charcoal or ducted out of the work area to the atmosphere. Volatile Anesthetic molecules may have a life of up to 30 years in the atmosphere so using lower O<sub>2</sub> flows reduces WAG environmental pollution as well as Anesthetic costs - see AAS Guide to Low Flow anesthesia.



## WAG Management Techniques

Effective work habits include systems for setting up and pressure testing Anesthetic machines and vaporisers as well as techniques for inflating ET tube cuffs or starting and disconnecting patients from Anesthetic machines. Purchase the AAS laminated Guide to Effective WAG



Management which includes 10 work habits to reduce WAG pollution.

Animals recovering from anaesthesia cause WAG room pollution because they exhale the Anesthetic that was absorbed into their body. Large, well ventilated rooms or those with an appropriate exhaust system will reduce this WAG to an acceptable level, generally below the "smell threshold" (less than 50 ppm).

Pregnant women working in areas where WAG pollution may be unavoidable such as anesthesia induction, recovery or while filling vaporisers should wear facemasks with activated charcoal filters. The charcoal filters should be changed regularly - call AAS.



Passive "Through-the-Wall" systems duct WAG to the atmosphere via a window, wall, floor or roof vent, which should be fitted with an insect screen to

prevent occlusion. These are effective, simple and low maintenance systems suitable for most veterinary hospitals but should have NO resistance. Keep WAG tubing off the floor to prevent inadvertent occlusion.

The distance from the machine "pop-off" valve to the exterior vent should be less than 6 metres for 20 mm ID corrugated or PVC tubing; for longer distances use larger diameter pipe - call AAS for installation details.

Activated charcoal canisters absorb volatile Anesthetic vapours (not N<sub>2</sub>O) at around 20% of the charcoal's weight as grams of anaesthetic. A 500 gm charcoal absorber will absorb about 125 ml of Isoflurane or Halothane liquid, so it should be discarded when a new 250 ml bottle



Anesthetic is opened (125 ml is absorbed by patients) - AAS manufactures a refillable charcoal canister.

Active scavenging systems take the WAG delivered passively from the "pop-off" valve tubing and blow or suck the gas to either the building's exterior vent or to an activated charcoal canister. Active devices only need to be used in large buildings with long distances to the vent-point. Poorly designed active systems can cause WAG room pollution or injure patients so should include positive/negative pressure relief devices - call AAS for more information.

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