

## VCA I.S.O. INHALATION ANAESTHETIC

### *General inhalant anaesthetic agent.*

#### **Presentation and Composition:**

I.S.O. (Isoflurane) is a clear, colourless stable liquid containing no additives or chemical stabilisers. I.S.O. (Isoflurane) has a mildly pungent, musty, ethereal odour. It is a volatile liquid for the generation of gaseous anaesthetic. Chemically it is difluoromethyl 1-chloro-2,2,2 trifluoroethyl difluoromethyl ether.

#### **Clinical Pharmacology:**

Isoflurane is an inhalation anaesthetic. The level of anaesthesia may be changed rapidly with I.S.O. (Isoflurane). Indication and recovery from anaesthesia with I.S.O. is typically smooth and uneventful. Isoflurane is a profound respiratory depressant. **THE PATIENT'S RESPIRATION MUST BE MONITORED CLOSELY AT ALL TIMES AND SUPPORTED WHERE NECESSARY.** As the anaesthesia concentration increases, both tidal volume and respiratory rates decrease. This depression is partially reversed by surgical stimulation, even at deeper levels of anaesthesia.

Blood pressure decreases with induction of anaesthesia but returns towards normal with surgical stimulation. Progressive increases in depth of anaesthesia produce corresponding

decreases in blood pressure. However, heart rhythm is stable and cardiac output is maintained with controlled ventilation and normal PaCO<sub>2</sub> despite increasing depth of anaesthesia. The hypercapnia which attends spontaneous ventilation during I.S.O. anaesthesia increases heart rate and raises cardiac output levels above levels observed with controlled ventilation.

I.S.O. does not sensitise the myocardium to exogenously administered epinephrine in the dog.

#### **Directions for Use:**

**I.S.O. should only be used in a vapouriser suitable for Isoflurane with an appropriate anaesthetic circuit.**

**DO NOT USE** in animals with a known sensitivity to Isoflurane or with a known susceptibility to malignant hypothermia.

#### **Premedication:**

Muscle relaxation may be adequate for intra-abdominal operations at normal levels of anaesthesia. However, if muscle relaxants are used to achieve greater relaxation should be noted that:

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**ALL COMMONLY USED MUSCLE RELAXANTS ARE MARKEDLY POTENTIATED WITH I.S.O. THE EFFECT BEING MOST PROFOUND WITH THE NONDEPOLARISING TYPE.** Neostigmine reverses the effect of nondepolarising muscle relaxants in the presence of I.S.O. but does not reverse the direct neuromuscular depression of I.S.O.

The MAC (Minimal Alveolar Concentration) in oxygen shown below (Maintenance section) for the various species should be used as a guide only. The actual amount required will depend on the individual patient's needs and other variables including premedications. At all times, a veterinarian should monitor the clinical signs of the patient and adjust the concentration of I.S.O. accordingly. It is also important that sufficient tissue oxygenation be maintained throughout the entire period of anaesthesia.

### Induction:

Surgical anaesthesia is usually by mask induction and achieved in 5 to 10 minutes.

**Dogs:** Inspired concentrations of up to 5.0% I.S.O. alone with oxygen is usually sufficient to induce surgical anaesthesia in dogs.

**Cats:** Inspired concentrations of up to 4.0% I.S.O. alone with oxygen is usually sufficient to induce surgical anaesthesia in cats.

**Ornamental birds:** Inspired concentrations of 3.0 to 5.0% I.S.O. alone with oxygen is usually sufficient to induce surgical anaesthesia in ornamental birds.

**Reptiles:** Inspired concentrations of 2.0 to 4.0% I.S.O. alone with oxygen is usually sufficient to induce surgical anaesthesia in reptiles.

**Small mammals:** Inspired concentrations of 2.0 to 3.0% I.S.O. alone with oxygen is usually

sufficient to induce surgical anaesthesia in small animals.

**Foals:** Inspired concentrations of 3.0 to 5.0% I.S.O. alone with oxygen is usually sufficient to induce surgical anaesthesia in foals.

### Maintenance:

The concentration of vapour necessary to maintain anaesthesia is much less than that required to induce the patient and may also be lowered through the use of premedications.

**Dogs:** Surgical levels of anaesthesia in dogs may be sustained with a 1.5 to 2.5% concentration of I.S.O. in oxygen. (MAC 1.28%)

**Cats:** Surgical levels of anaesthesia in cats may be sustained with a 1.5 to 3.0% concentration of I.S.O. in oxygen. (MAC 1.63%).

**Ornamental birds:** Surgical levels of anaesthesia in ornamental birds may be sustained with a 0.6 to 5.0% concentration of I.S.O. in oxygen. (MAC ca 1.45%).

**Reptiles:** Surgical levels of anaesthesia in reptiles may be sustained with a 1.0 to 3.0% concentration of I.S.O. in oxygen.

**Small Mammals:** Surgical levels of anaesthesia in small mammals may be sustained with a 0.25 to 2.0% concentration of I.S.O. in oxygen. (MAC 2.05% - Rabbits).

**Horses:** Surgical levels of anaesthesia in horses may be sustained with a 1.5 to 2.5% concentration of I.S.O. in oxygen. (MAC 1.31%).

The level of blood pressure during maintenance is an inverse function of I.S.O. concentration in the absence of other complications. Excessive decreases, unless related to hypovolemia, may be due to depth of anaesthesia and in any such instance may be corrected by lightening the level of anaesthesia.

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Recovery from I.S.O. is typically smooth, rapid and uneventful.

### Precautions:

I.S.O. does interact with dry carbon dioxide absorbents (soda lime) to form carbon

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monoxide. In order to minimise the risk of a carbon monoxide build up in rebreathing circuits; carbon dioxide absorbents should not be allowed to dry out. Carbon dioxide absorbents (soda lime) should be changed regularly in accordance with the manufacturer's recommendations.

I.S.O. has negligible analgesic properties and consideration should be given to analgesic requirements of the patient before recovery from anaesthesia takes place. The concurrent use of analgesics or sedatives with I.S.O. is likely to reduce the level of I.S.O. concentration required to induce and maintain anaesthesia. If an animal is already anaesthetised with I.S.O. then particular care should be exercised if administering a midazolam-ketamine combination.

I.S.O. has been safely used for anaesthesia during caesarean section in dogs and cats. However, data concerning its use in pregnant, breeding or lactating animals of all target species have not been obtained.

### Safety directions:

Avoid contact with eyes and skin as I.S.O. may cause irritation. Eyes should be protected from spillage and plastic (not rubber) gloves should be worn at all times. Ensure adequate ventilation during use and do not breathe the exposure standard (OES) on an 8 hour time weighted basis is 50ppm (UK Standards).

To prevent the build-up of Isoflurane vapours and exposure to veterinarians as well as support personnel, operating areas must have adequate ventilation and air extraction systems. Care should be taken when filling vapourisers with I.S.O. Isoflurane should be transferred from the bottle to the vapouriser by using the appropriate filling device. Spillage should be minimised at all times and cleaned up by using sawdust, sand or other inert absorbents. Contaminated material should be removed and placed in a well ventilated area.

Repeated exposure to halogenated anaesthetics has been linked to increased miscarriages in personnel of operating theatres. It is recommended that caution be exercised when a pregnant woman enters an operating area whilst I.S.O. is being used. Adequate ventilation is mandatory.

### First aid:

If poisoning occurs, contact a doctor or Poisons Information Centre.

In the event a person appears to be suffering the effects of I.S.O. through accidental exposure, remove that person from the source of exposure. Seek urgent medical assistance and have a bottle of I.S.O. available for reference. Wash any I.S.O. from skin immediately with soap and water. Contaminated eyes should be washed with water for 10 minutes.

### Meat Withholding Period:

**NOT TO BE USED** in horses intended for human consumption.

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## VCA I.S.O. INHALATION ANAESTHETIC (cont)

**Storage:** Store below 25°C (Air Conditioning).  
Protect from light and direct heat. Store in  
tightly closed original container.

**Disposal:** Dispose of empty container by  
wrapping with paper and putting in garbage.

Registered pursuant to the ACVM Act 1997,  
No A9129

### RESTRICTED VETERINARY MEDICINE

VCA I.S.O. Inhalation Anaesthetic  
For Animal Treatment Only



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