PARTICULARS TO APPEAR ON THE OUTER PACKAGE

CARTON BOX

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Isoba™ 100% w/w inhalation vapour, liquid

2. STATEMENT OF ACTIVE AND OTHER SUBSTANCES

100% isoflurane for inhalation use

3. PHARMACEUTICAL FORM

Inhalation vapour, liquid

4. PACKAGE SIZE

250 ml

5. TARGET SPECIES

Dogs, cats, horses, ornamental birds including homing pigeons, reptiles, small mammals (including rat, mouse, hamster, chinchilla, gerbil, guinea pig, ferret and rabbits).

6. INDICATION(S)

7. METHOD AND ROUTE(S) OF ADMINISTRATION

Inhalation vapour, liquid

8. WITHDRAWAL PERIOD

Horse meat: 2 days.
Do not use in mares producing milk for human consumption.
Do not use in pigeons kept as food producing animals.
Do not use in rabbits intended for human consumption.

9. SPECIAL WARNING(S), IF NECESSARY

Operator warnings, Disposal etc: read package leaflet before use.**EXPIRY DATE**

Do not use this product after the stated expiry date.

10. SPECIAL STORAGE CONDITIONS

Do not store above 25°C. Store in tightly closed original container. Protect from direct sunlight and direct heat. Store container in outer carton.

11. SPECIFIC PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCTS OR WASTE MATERIALS, IF ANY

Operator warnings, Disposal etc: read package leaflet before use.

12. THE WORDS "FOR ANIMAL TREATMENT ONLY" AND CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE IF APPLICABLE

[Distribution category]

POM-V

13. THE WORDS "KEEP OUT OF THE SIGHT AND REACH OF CHILDREN"

FOR ANIMAL TREATMENT ONLY
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN

14. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

MA Holder:
Intervet UK Ltd.
Walton Manor
Walton
Milton Keynes, MK7 7AJ

Distributed in Northern Ireland by:
Intervet Ireland Ltd.
Magna Drive, Magna Business Park,
City West Road
Dublin 24
Ireland

15. MARKETING AUTHORISATION NUMBER(S)

Vm 01708/4600

16. MANUFACTURER'S BATCH NUMBER

Batch number

Expiry date
end of:

PARTICULARS TO APPEAR ON THE IMMEDIATE PACKAGE

LABEL

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Isoba™ 100% w/w inhalation vapour, liquid

2. STATEMENT OF ACTIVE AND OTHER SUBSTANCES

100% isoflurane for inhalation use

3. PHARMACEUTICAL FORM

Inhalation vapour, liquid

4. PACKAGE SIZE

250 ml

5. TARGET SPECIES

Inhalation liquid for general anaesthetic of dogs, cats, horses, ornamental birds including homing pigeons, reptiles, small mammals (including rat, mouse, hamster, chinchilla, gerbil, guinea pig, ferret and rabbit).

6. INDICATION(S)

7. METHOD AND ROUTE(S) OF ADMINISTRATION

Inhalation vapour, liquid

8. WITHDRAWAL PERIOD

Horse meat: 2 days.
Do not use in mares producing milk for human consumption.
Do not use in pigeons kept as food producing animals.
Do not use in rabbits intended for human consumption.

9. SPECIAL WARNING(S), IF NECESSARY

Operator warnings, Disposal etc: read package leaflet before use. **EXPIRY DATE**

Do not use this product after the stated expiry date.

10. SPECIAL STORAGE CONDITIONS

Do not store above 25°C. Store in tightly closed original container. Protect from direct sunlight and direct heat. Store container in outer carton.

11. SPECIFIC PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCTS OR WASTE MATERIALS, IF ANY

Operator warnings, Disposal etc: read package leaflet before use.

12. THE WORDS "FOR ANIMAL TREATMENT ONLY" AND CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE IF APPLICABLE

[Distribution category]

POM-V

13. THE WORDS "KEEP OUT OF THE SIGHT AND REACH OF CHILDREN"

FOR ANIMAL TREATMENT ONLY
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN

14. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

MA Holder:
Intervet UK Ltd.
Walton Manor
Walton
Milton Keynes, MK7 7AJ

15. MARKETING AUTHORISATION NUMBER(S)

Vm 01708/4600

16. MANUFACTURER'S BATCH NUMBER

Batch number

Expiry date end of:

[Include information under these headings as it appears in the SPC]

PACKAGE LEAFLET FOR: Isoba™ 100% w/w inhalation vapour, liquid

1. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER AND OF THE MANUFACTURING AUTHORISATION HOLDER RESPONSIBLE FOR BATCH RELEASE, IF DIFFERENT

Intervet UK Ltd.
Walton Manor
Walton, Milton Keynes MK7 7AJ

Manufacturer for the batch release
Halocarbon Products Corporation
1100 Dittman Court
North Augusta
SC 29841
USA

2. NAME OF THE VETERINARY MEDICINAL PRODUCT

Isoba™ 100% w/w inhalation vapour, liquid
The active ingredient of ISOBA is isoflurane

3. STATEMENT OF THE ACTIVE SUBSTANCE (S) AND OTHER INGREDIENTS

A clear colourless volatile liquid containing isoflurane 100% w/w. It is stable, non-flammable, non-explosive and has a mildly pungent odour.

4. INDICATION(S)

An inhalation agent for induction and maintenance of general anaesthesia in dogs, cats, horses, ornamental birds including homing pigeons, reptiles, small mammals (rat, mouse, hamster, chinchilla, gerbil, guinea pig, ferret and rabbits).

5. CONTRAINDICATIONS

This product should not be used in animals with a known sensitivity to isoflurane or a known susceptibility to malignant hyperthermia.

6. ADVERSE REACTIONS

Isoflurane causes dose-dependent respiratory depression, and in rare cases malignant hyperthermia.
Isoflurane causes a dose-dependent reduction in systemic blood pressure. Cardiac arrhythmias and transitory bradycardia have been reported rarely.
Although isoflurane can be used during cranial surgery and in patients with head injuries, increased cerebral blood flow and intracranial pressure can occur. Hyperventilating the patient can reduce the increased intracranial pressure.

7. TARGET SPECIES

Dogs, cats, horses, ornamental birds including homing pigeons, reptiles, small mammals (rat, mouse, hamster, chinchilla, gerbil, guinea pig, ferret and rabbits).

8. DOSAGE FOR EACH SPECIES, ROUTE(S) AND METHOD OF ADMINISTRATION

Isoflurane is a potent anaesthetic agent of low solubility, allowing rapid changes to be made to the level of anaesthesia. For this reason it should only be administered using an accurately calibrated vaporiser in association with an appropriate anaesthetic circuit; however, a non-precision, uncompensated vaporizer (eg Stephens vaporizer, Komesaroff machine) is also suitable for the delivery of isoflurane.

The lowest effective dose should be administered. Isoflurane should be used to effect by a suitably skilled anaesthetist.

Administration may be performed in oxygen only or in a mixture of nitrous oxide and oxygen.

Induction, *Maintenance and Recovery*:

See table below (for a more detailed description please see text below the table):

Species	MAC (%)	Induction (%)*	Maintenance (%)
Horse	1.31	3.0-5.0 (foals)	1.5-2.5
Dog	1.28	2.0-4.0	1.5-2.5
Cat	1.63	2.0-4.0	1.5-3.0
Ornamental birds	ca 1.45	3.0-5.0	0.6-5.0
Reptiles	ca 2.83	2.0-4.0	1.0-3.0
Small mammals including rabbits	1.34 (mouse) 1.38-2.4 (rat) 2.05 (rabbit)	2.0-3.0	0.25-2.0

* Induction usually occurs via a face mask.

In all species, recovery is normally smooth and rapid.

Dog

Minimum Alveolar Concentration: The MAC for isoflurane is 1.28% in the dog.

Premedication: a preanaesthetic regime should be chosen to suit the patient. Isoflurane has been shown to be compatible with common preanaesthetic agents such as acepromazine, opioids, benzodiazepines and alpha-2-adrenoreceptor agonists.

Induction of anaesthesia: dogs may be induced by inspired isoflurane concentrations between 2 and 4%. Premedication and/or concurrent use of nitrous oxide reduces the concentration of isoflurane required. If anaesthesia is induced with an injectable

agent, an initial isoflurane concentration slightly above that required for maintenance should usually be administered to aid the transition onto gaseous anaesthesia.

Maintenance of anaesthesia: As a general rule, concentrations of around 1.3 MAC are necessary for anaesthetic maintenance. In practice levels of 1.5-2.5% in the dog are used. Again, premedication and/or concurrent use of nitrous oxide or the use of sedatives and/or analgesics during anaesthesia reduces the concentration of isoflurane required. Recovery is usually smooth and rapid.

Cat

Minimum Alveolar Concentration: The MAC of isoflurane is 1.63% in the cat.

Premedication: a preanaesthetic regime should be chosen to suit the patient. Isoflurane has been shown to be compatible with common preanaesthetic agents such as acepromazine, opioids, benzodiazepines and alpha-2-adrenoreceptor agonists.

Induction of anaesthesia: Cats may be induced by inspired isoflurane concentrations of between 2 and 4%. Premedication and/or concurrent use of nitrous oxide reduces the concentration of isoflurane required. If anaesthesia is induced with an injectable agent, an initial isoflurane concentration slightly above that required for maintenance should usually be administered to aid the transition onto gaseous anaesthesia.

Maintenance of anaesthesia: As a general rule, concentrations of around 1.3 MAC are necessary for anaesthetic maintenance. In practice, levels of 1.5-3.0% in the cat are used. Again, premedication and/or concurrent use of nitrous oxide or the use of sedatives and/or analgesics during anaesthesia reduces the concentration of isoflurane required. Recovery is usually smooth and rapid.

Horse

Minimum Alveolar Concentration: The MAC value of isoflurane in the horse is approximately 1.31%.

Induction of anaesthesia: As it is not normally practicable to induce anaesthesia in adult horses using isoflurane, induction should usually be achieved by the use of a short acting barbiturate, such as thiopentone sodium, or the dissociative anaesthetic ketamine and may include guaiphenesin. Concentrations of 3 to 5% isoflurane may then be used to achieve the desired depth of anaesthesia in 5 to 10 minutes.

Isoflurane at a concentration of 3 to 5% in a high flow of oxygen may be used for induction in foals.

Maintenance of anaesthesia: Anaesthesia may be maintained using 1.5% to 2.5% isoflurane.

Ornamental Birds

Minimum Alveolar Concentration: Few MAC/ED_{50} values have been recorded. Examples are 1.34% for the Sandhill crane, 1.45% for the homing pigeon, reduced to 0.89% by the administration of midazolam and 1.44% for cockatoos, reduced to 1.08% by the administration of butorphanol analgesic.

The use of isoflurane anaesthesia has been reported for many species, from small birds such as zebra finches, to large birds such as vultures, eagles and swans.

Induction of anaesthesia: Induction with 3 to 5% isoflurane is normally rapid. Induction of anaesthesia with propofol, followed by isoflurane maintenance, has been reported for swans.

Maintenance of anaesthesia: The maintenance dose depends on the species and individual. Generally, 2 to 3% is suitable and safe. Only 0.6 to 1% may be needed for some stork and heron species. Up to 4 to 5% may be needed for some vultures and eagles. Up to 3.5 to 4% may be needed for some ducks and geese. Generally, birds respond very rapidly to changes in concentration of isoflurane.

Reptiles

Minimum Alveolar Concentration: The literature records its use on a wide variety of reptiles (e.g. various species of lizard, tortoise, iguanas, chameleon and snakes). The ED_{50} was determined in the desert iguana to be 3.14% at 35°C and 2.83% at 20°C.

Induction of anaesthesia: Induction is usually rapid at 2 to 4% isoflurane. Reptiles may be difficult to induce with inhalation agents due to breath holding.

Maintenance of anaesthesia: 1 to 3% is a typical concentration.

Small Mammals

Minimum Alveolar Concentration: Isoflurane has been recommended for anaesthesia of a wide variety of small mammals, e.g. rat, mouse, hamster, chinchilla, gerbil, guinea pig, ferret and rabbit. The MAC value for mice has been cited as 1.34%, for rat as 1.38%, 1.46% and 2.4%, for rabbits as 2.05%

Induction of anaesthesia: Isoflurane concentration 2 to 3%.

Maintenance of anaesthesia: Isoflurane concentration 0.25 to 2%.

9. ADVICE ON CORRECT ADMINISTRATION

The metabolism in small mammals can be affected by decrease in body temperature, due to the high surface area to bodyweight ratio.

Therefore body temperature should be monitored and kept stable.

Delivery in nitrous oxide or concurrent use of premedicant, sedative or analgesic drugs may reduce significantly the required concentration of isoflurane necessary for induction and maintenance of anaesthesia. Skilled monitoring of anaesthetic depth should accompany isoflurane use. As the primary signs of overdose are due to cardiopulmonary depression, cardiovascular signs (e.g. pulse strength, heart rate, arterial blood pressure, mucous membrane colour and refill) and respiratory signs (rate and depth of respiration) should be particularly noted.

Isoflurane overdose may result in profound respiratory depression. Therefore, respiration must be monitored closely and supported when necessary with supplementary oxygen and/ or assisted ventilation.

In cases of severe cardiopulmonary depression, administration of isoflurane should be discontinued, the breathing circuit should be flushed with oxygen, the existence of a patent airway ensured, and assisted or controlled ventilation with pure oxygen initiated.Cardiovascular depression should be treated with plasma expanders, pressor agents, antiarrhythmic agents or other appropriate techniques.

Respiratory arrest should be treated by assisted ventilation. In the case of cardiac arrest, perform a complete cardio pulmonary resuscitation.

It causes good muscle relaxation for standard surgical procedures. Isoflurane has little or no analgesic property. Adequate analgesia should always be given before surgery. The analgesic requirements of the patient should be considered before general anaesthesia is ended.

Where no MAC/ED_{50} values are mentioned for the different species, use of isoflurane should only be considered following a risk/benefit assessment by the veterinary surgeon.

10. WITHDRAWAL PERIOD(S)

Horse meat: 2 days.

Do not use in mares producing milk for human consumption.

Do not use in pigeons kept as food producing animals.

Do not use in rabbits intended for human consumption.

11. SPECIAL STORAGE PRECAUTIONS

Do not store above 25°C. Store in tightly closed original container.

Keep container in outer carton.

Protect from direct sunlight and direct heat.

Keep out of the reach and sight of children.

Do not use this product after the expiry date stated on the carton and label.

SPECIAL WARNING(S)

Target species warnings

Isoflurane causes dose-dependent respiratory depression, and in rare cases malignant hyperthermia.

Isoflurane causes a dose-dependent reduction in systemic blood pressure.

Isoflurane is minimally metabolised (less than 0.2%) and almost all of the administered isoflurane is excreted unchanged by the lungs. Isoflurane causes dose-dependent respiratory depression and hypotension. Cardiac arrhythmias and transitory bradycardia have been reported rarely. In line with the known pharmacodynamics properties of this anaesthetic, including the reduction of systemic blood pressure, a risk-benefit assessment should be conducted before using this product in patients with compromised cardiovascular function.

Although isoflurane can be used during cranial surgery and in patients with head injuries, increased cerebral blood flow and intracranial pressure can occur.

Hyperventilating the patient can reduce the increased intracranial pressure.

Malignant hyperthermia has been reported very rarely in susceptible animals.

Although isoflurane has been used safely during caesarean section in the dog and cat, no full data are available on its use during pregnancy and lactation in the target species. Use in pregnant and lactating animals should, therefore, only be considered following a risk/benefit assessment by the veterinary surgeon.

Carbon monoxide production from contact with dessicated sodaor baro- lime has been reported. This is avoided by ensuring that soda-lime is fresh or rehydrated if it has become desiccated.

Operator warnings

Do not breathe vapour. Users should consult their relevant National Authority for advice on Occupational Exposure Standards for isoflurane.

Operating rooms and recovery areas should be provided with adequate ventilation or scavenging systems to prevent the accumulation of anaesthetic vapour. All scavenging/extraction systems must be adequately maintained.

Pregnant and breast-feeding women should avoid exposure to the product and should avoid operating rooms and recovery areas.

Avoid using masking procedures for prolonged induction and maintenance of general anaesthesia. Use cuffed endotracheal intubation when possible for the administration of Isoba during maintenance of general anaesthesia.

To protect the environment, it is considered good practice to use charcoal filters with scavenging equipment.

Care should be taken when dispensing isoflurane, with any spillage removed immediately using an inert and absorbent material e.g. sawdust.

Wash any splashes from skin and eyes, and avoid contact with the mouth.

If severe accidental exposure occurs remove the operator from the source of exposure, seek urgent medical assistance and show this label.

Halogenated anaesthetic agents may induce liver damage. In the case of isoflurane this is an idiosyncratic response very rarely seen after repeated exposure.

Advice to doctors:

Ensure a patent airway and give symptomatic and supportive treatment. Note that adrenaline and catecholamines may cause cardiac dysrhythmias.

12. SPECIAL PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCT OR WASTE MATERIALS, IF ANY

Dispose of any unused product and empty containers in accordance with guidance from your local waste regulation authority.

13. DATE ON WHICH THE PACKAGE LEAFLET WAS LAST APPROVED

December 2013

14. OTHER INFORMATION

For animal treatment only.

POM-V To be supplied only on veterinary prescription.

Pack Sizes: 250ml

MA number: *Vm* 01708/4600

Approved: 27/06/2017