

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Exagon 400 mg/ml solution for injection (AT, CZ, DE, EE, EL, ES, LT, LV, PL, PT, RO, SI, SK)

Eutavet, 400 mg/ml solution for injection (IT)

Exagon solution for injection (FR)

Exagon vet. 400 mg/ml solution for injection (DK, IS, NO, SE)

Eutabarb vet. 400 mg/ml solution for injection (FI)

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Per ml:

Active substance:

Pentobarbital sodium 400.0 mg
(equivalent to 364.6 mg pentobarbital)

Excipients:

Propylene glycol 200.0 mg
Ethanol (96 per cent) 80.0 mg
Benzyl alcohol (E 1519) 20.0 mg
Patent Blue V (E 131) 0.01 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for injection.
Clear, blue solution.

4. CLINICAL PARTICULARS

4.1 Target species

Horses, ponies, cattle, swine, dogs, cats, minks, polecats, hares, rabbits, guinea pigs, hamsters, rats, mice, poultry, pigeons, birds, snakes, tortoises, lizards, frogs.

4.2 Indications for use, specifying the target species

Euthanasia

4.3 Contraindications

Do not use for anaesthesia.

Do not use for intracoelomic injection in chelonia as the time to death may be unnecessarily prolonged compared with intravenous administration.

4.4 Special warnings for each target species

To reduce the risk of induction excitement, it is recommended to perform euthanasia in a quiet area.

Intravenous injection of pentobarbital has the ability to cause induction excitement in several species of animal and **adequate sedation should be applied** if deemed necessary by the veterinary surgeon. Measures must be taken to avoid perivascular administration (e.g. by using intravenous catheter).

The intraperitoneal route of administration may cause a prolonged onset of action with an increased risk of induction excitement. Intraperitoneal administration must only be used following appropriate sedation. Measures must be taken to avoid administration into the spleen or organs/tissue with low capacity for absorption. This route of administration is only suitable for small mammals.

Intracardiac injection must only be used if the animal is heavily sedated, unconscious or anesthetized.

The intrapulmonary route of administration may cause a prolonged onset of action with an increased risk of adverse effects noted in 4.6 and must be reserved for cases where other routes of administration are not possible. Intrapulmonary administration may only be used in poultry, pigeons, birds, snakes, tortoises, lizards and frogs. Animals must be heavily sedated, unconscious or anesthetized before this route of administration is employed. Do not use intrapulmonary administration in any other target animal species.

4.5 Special precautions for use

Special precautions for use in animals

Ingestion of euthanized animals by other animals may lead to intoxication, anaesthesia and even death. Barbiturates are highly persistent in carcasses and also stable to cooking temperature.

After administration of this product, recumbency will occur within 10 seconds. In case the animal is standing at time of administration, care should be taken by the person administering the veterinary medicinal product and any other persons present to keep a safe distance from the animal to avoid injury.

Horse, cattle:

In horses and cattle, premedication with an appropriate sedative must be used to produce profound sedation before euthanasia, and an alternative method of euthanasia should be available.

Swine:

In individual cases – especially in restrained animals – agitation/excitation could occur during administration resulting in accidental paravenous administration of the product. Due to the difficulty of safe intravenous injections in swine adequate sedation of the animal before IV administration of pentobarbital is recommended. Intracardiac administration must only be used if the animal is heavily sedated, unconscious or anesthetized. Application via marginal ear vein should at least initially be performed without fixation. The animals should be restrained between the legs of an assisting person. If fixation is necessary, a snout rope should be used.

Special precautions to be taken by the person administering the veterinary medicinal product to animals

Pentobarbital is a potent drug which is toxic in man – particular care must be taken to avoid accidental ingestion and self-injection. Only carry this veterinary medicinal product in an unarmed syringe to avoid accidental injection.

Systemic uptake (including absorption via skin or eye) of pentobarbital causes sedation, sleep induction and respiratory depression.

The concentration of pentobarbital in the product is such that the accidental injection or ingestion of quantities as small as 1 ml in human adults can have serious CNS effects. A dose of pentobarbital sodium of 1 g (equivalent to 2.5 ml of product) has been reported to be fatal in humans.

Avoid direct contact with the skin and eyes, including hand-to-eye contact.

Wear suitable protective gloves when handling this product – pentobarbital can be absorbed via skin and mucosa.

Moreover, this product may be irritating to the eye and can cause irritation to the skin as well as hypersensitivity reactions (due to the presence of pentobarbital and benzyl alcohol). People with known hypersensitivity to pentobarbital or to any other ingredient should avoid contact with the veterinary medicinal product.

This product should only be used in the presence of another person that can assist in case of accidental exposure. Instruct that person if not a medical professional about the risks of the product.

In the event of accident the following action should be taken:

Skin – Wash immediately with water and then thoroughly with soap and water. Seek medical advice immediately and show the package leaflet or the label to the physician.

Eyes – Rinse immediately with plenty of cold water. Seek medical advice immediately and show the package leaflet or the label to the physician.

Ingestion – Wash out mouth. Seek medical advice immediately and show the package leaflet or the label to the physician. Keep warm and rest.

Accidental self-injection – Obtain URGENT medical attention (take the package leaflet with you), advising medical services of barbiturate poisoning. Do not leave the patient unattended.

DO NOT DRIVE as sedation may occur.

This product is flammable. Keep away from sources of ignition. Do not smoke.

To the physician: Urgent care should be taken to maintain airways and cardiac function. In case of severe intoxication, additional measures should be taken to enhance the elimination of the barbiturate. Give symptomatic and supportive treatment.

Other precautions

Due to the risk of secondary intoxication animals euthanized with the veterinary medicinal product should not be fed to other animals, but should be disposed of in accordance with national legislation and in a manner securing that other animals cannot have access to the carcasses.

4.6 Adverse reactions (frequency and seriousness)

Minor muscle twitching may occur after injection. In cattle, gasping may occur in rare cases if pentobarbital is administered below the recommended dose. Death may be delayed, if the injection is administered perivascularly. Perivascular or subcutaneous administration can result in tissue irritation. Administration by the intrapulmonary route may cause coughing, gasping and respiratory distress. Pentobarbital has the ability to cause excitation during introduction of sleep. Pre-medication/pre-sedation strongly reduces the risk for excitation during introduction of sleep.

The frequency of adverse reactions is defined using the following convention:

- Very common (more than 1 in 10 animals treated displaying adverse reactions)
- Common (more than 1 but less than 10 animals in 100 animals treated)
- Uncommon (more than 1 but less than 10 animals in 1.000 animals treated)
- Rare (more than 1 but less than 10 animals in 10.000 animals treated)
- Very rare (less than 1 animal in 10.000 animals treated, including isolated reports)

4.7 Use during pregnancy, lactation or lay

The safety of the veterinary medicinal product has not been established during pregnancy, lactation or lay. Use only accordingly to the benefit-risk assessment by the responsible veterinarian.

The increased body weight of pregnant animals should be taken into account in the dose calculation. Whenever possible, the product should be injected intravenously. The fetus must not be removed from the maternal body (e. g. for examination purposes) earlier than 25 minutes after confirmation of the death of the mother. In this case, the fetus is to be examined for signs of life and, if necessary, euthanized separately.

4.8 Interaction with other medicinal products and other forms of interaction

When an aggressive animal is to undergo euthanasia, premedication with a more easily administered (oral, subcutaneous or intramuscular) sedative is recommended.

Although premedication with sedatives may delay the desired effect of the product due to decreased circulatory function this may not be clinically noticeable since CNS depressant drugs (opioids, α_2 adrenoreceptor agonists, phenothiazines, etc.) can also increase the effect of pentobarbital.

4.9 Amounts to be administered and administration route

The intravenous route of administration should be the route of choice and adequate sedation should be applied if deemed necessary by the veterinary surgeon. For horses and cattle premedication is mandatory.

Where intravenous administration is difficult, and only following deep sedation or anaesthesia, the product may be administered via the intracardiac route. Alternatively, for small animals only, administration via the intraperitoneal route could be used, but only following appropriate sedation. Intrapulmonary administration must only be used as a **last resort** and only if the animal is heavily sedated, unconscious or anesthetized and shows no response to noxious stimuli. This route of administration may only be used in poultry, pigeons, birds, snakes, tortoises, lizards and frogs.

The applicable dose depends on animal species and route of administration. Therefore, please follow the instructions described in the dosage scheme carefully.

The intravenous injection in small animals should be carried out with a continuous injection rate until unconsciousness occurs.

Method of choice in birds is the intravenous injection. If venipuncture cannot be performed (due to e.g. haematoma, collapse of cardiovascular system) intrapulmonary injection could be an option. In birds, intrapulmonary injection is performed by inserting the canula in dorso-ventral direction on the left or right side of the backbone into the lung (3rd or 4th intercostal segment between backbone and scapula).

In horses, cattle and swine pentobarbital must be injected as a rapid bolus.

For easier and less painful injection into the marginal ear vein in swine the product should be diluted with sterile, isotonic sodium chloride (0.9%) solution at a mix ratio 1:1. National legislation for the dilution of veterinary medicinal products must be followed.

Horses, ponies

1 ml per 4.5 – 5 kg bodyweight, intravenous as a rapid bolus

Cattle

1 - 2 ml per 10 kg bodyweight, intravenous as a rapid bolus

Swine

Amounts to be administered:

Vena cava cranialis: intravenous as a rapid bolus

0.1 ml/kg bodyweight in animals weighing > 30 kg

0.2 ml/kg bodyweight in animals weighing < 30 kg

Marginal ear vein: intravenous as a rapid bolus

0.1 ml/kg bodyweight in animals weighing > 30 kg

0.2 ml/kg bodyweight in animals weighing < 30 kg

Dilution with sterile, isotonic NaCl (0.9%)-solution at a mix ratio of 1:1 is necessary.

Intracardiac route:

0.1 ml/kg bodyweight in animals weighing > 30 kg

0.2 ml/kg bodyweight in animals weighing < 30 kg

Administration routes:

Animals grouped by weight and routes of administration:

Piglet (up to 8 kg):

Intravenous (Vena cava cranialis) or intracardiac administration

Weaners (8 - 25 kg), growers (25 - 40 kg), fatteners (40 - 100 kg):

Intravenous (Vena cava cranialis or marginal ear vein) or intracardiac administration

Boars and sows (more than 100 kg):

Intravenous administration (marginal ear vein)

Fixation:

If possible, fixation should be avoided or at least limited to a minimum.

If fixation is necessary, a snout rope should be used.

Dogs

Intravenous administration: continuous injection (approx. 1.2 ml/s) until loss of consciousness, then the rest administered as a rapid bolus:

1 ml per 3 – 5 kg bodyweight

Intracardiac and intraperitoneal administration:

1 ml per 3 – 4 kg bodyweight

Cats

Intravenous administration: continuous injection until the animal loses consciousness, then the rest administered as a rapid bolus:

1 ml per 2 – 3 kg bodyweight

Intracardiac and intraperitoneal administration:

1 ml per kg bodyweight

Minks, polecats

1 ml per animal **intravenously**

1 ml per animal **intracardially** with a long canula (approx. 4 cm) injected in cranial and slightly dorsal direction from the caudal end of the sternum (*processus xiphoideus*).

Hares, rabbits, guinea pigs, hamsters, rats, mice

1 ml per 1 – 2 kg bodyweight **intravenously, intracardially**

1 ml per 0.5 – 1 kg bodyweight **intrapitoneally**.

Poultry, pigeons, birds

1 – 2 ml per kg bodyweight **intravenously**

1 – 2 ml per kg bodyweight **intrapulmonarily**.

Snakes, tortoises, lizards, frogs

Depending on the size of the animal inject 0.5 to 1.0 ml into the thoracic cavity near the heart; death is to be expected after about 5 to 10 minutes.

The stopper must not be punctured more than 25 times.

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

In case of accidental administration of the veterinary medicinal product to an animal, which should not be euthanized, adequate measures should be taken to maintain airways and circulation. The administration of oxygen and the use of analeptics are appropriate.

4.11 Withdrawal period(s)

Do not use in animals intended for human or animal consumption.

Adequate measures must be taken to ensure that carcasses of animals treated with this product and the by-products of these animals do not enter the food chain and are not used for human or animal consumption.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: barbiturates for euthanasia
ATCvet code: QN51AA01

5.1 Pharmacodynamic properties

Pentobarbital is a narcotic belonging to the group of barbituric acid derivatives. The LD₅₀ in dogs and cats is approximately 40 to 60 mg/kg bodyweight when injected intravenously.

For the euthanasia of animals highly excessive doses are administered. In endothermic animals, the immediate effect is the loss of consciousness followed by deep anaesthesia followed by death. Breathing stops and is quickly followed by cardiac arrest.

In poikilothermic animals death may be delayed depending upon the rate of absorption and metabolism of the product.

5.2 Pharmacokinetic particulars

The distribution of pentobarbital in the organism is quite even. The highest concentrations were found in the liver, in adipose tissue no accumulation could be shown.

Pentobarbital passes the placental barrier and also enters milk.

Elimination half-life in small ruminants has been reported to be approximately 1 hour, in cats 2 to 7.5 hours and in dogs 7 to 12.5 hours.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Benzyl alcohol (E 1519)
Patent Blue V (E 131)
Ethanol (96 per cent)
Propylene glycol
Water for injections

6.2 Major incompatibilities

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products except sterile, isotonic sodium chloride (0.9%) solution.

6.3 Shelf life

Shelf-life of the veterinary medicinal product as packaged for sale: 2 years
Shelf-life after first opening the immediate packaging: 28 days

Shelf-life of the 1:1 diluted solution for intravenous injection into the marginal ear vein in swine: 2 hours

6.4 Special precautions for storage

Do not store above 25 °C.
Do not freeze. Protect from light.

6.5 Nature and composition of immediate packaging

Cardboard box with clear glass vial (type II) with bromobutyl rubber stopper and aluminium cap.
Package sizes: 1 x 100 ml, 5 x 100 ml

Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products

Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal product should be disposed of in accordance with local requirements.

7. MARKETING AUTHORISATION HOLDER

To be completed nationally

8. MARKETING AUTHORISATION NUMBER(S)

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: DD/MM/YYYY
Date of last renewal: DD/MM/YYYY

10. DATE OF REVISION OF THE TEXT

PROHIBITION OF SALE, SUPPLY AND/OR USE

Not applicable.