

## 1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Dolorex 10 mg/ml Solution for Injection for horse, dog and cat

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

### Active substance:

Butorphanol 10 mg equivalent to butorphanol tartrate 14.6 mg

### Excipients:

Qualitative composition of excipients and other constituents	Quantitative composition if that information is essential for proper administration of the veterinary medicinal product
Benzethonium chloride	0.1 mg
Sodium citrate	
Sodium chloride	
Citric acid monohydrate	
Water for injections	

Aqueous colourless solution.

## 3. CLINICAL INFORMATION

### 3.1 Target species

Horses, dogs and cats.

### 3.2 Indications for use for each target species

Butorphanol is intended for use where short (horses and dogs) and short to medium (cats) duration analgesia is required.

For information on the duration of analgesia that can be expected following treatment, see section 4.2.

#### Horses:

For relief of pain associated with colic of gastrointestinal tract origin.

For sedation in combination with certain  $\alpha_2$ -adrenoceptor agonists (see section 3.9).

#### Dogs:

For relief of moderate visceral pain.

For sedation in combination with certain  $\alpha_2$ -adrenoceptor agonists (see section 3.9).

#### Cats:

For the relief of moderate pain associated with soft tissue surgery.

### 3.3 Contraindications

Do not use in animals with a history of liver or kidney disease.

Do not use in cases of hypersensitivity to the active ingredient or to any of the excipients.

Butorphanol/detomidine combination:

The combination should not be used in horses with a pre-existing cardiac dysrhythmia or bradycardia. The combination will cause a reduction in gastrointestinal motility and consequently should not be used in cases of colic associated with impaction.

### **3.4 Special warnings**

In cats, individual response to butorphanol may be variable. In the absence of an adequate analgesic response, an alternative analgesic agent should be used (see section 3.9). Increasing the dose may not increase the intensity or duration of analgesia

### **3.5 Special precautions for use**

Special precautions for safe use in the target species:

Butorphanol is a morphinan derivative and therefore possesses opioid activity.

Horses:

The use of the veterinary medicinal product at the recommended dose may lead to transient ataxia and/or excitement. Therefore, to prevent injuries in patients and people when treating horses, the location for the treatment should be chosen carefully.

Horses, dogs and cats:

Due to its antitussive properties, butorphanol may lead to an accumulation of mucous in the respiratory tract.

Therefore, in animals with respiratory diseases associated with increased mucous production or in animals that are being treated with expectorants, butorphanol should only be used on the basis of a benefit-risk analysis by the responsible veterinarian.

The concomitant use of other central nervous depressants would be expected to potentiate the effects of butorphanol, and such drugs should be used with caution. A reduced dose should be used when administering these agents concurrently.

The combination of butorphanol and  $\alpha_2$ -adrenoceptor agonists should be used with caution in animals with cardiovascular disease. The concurrent use of anticholinergic drugs, e.g. atropine should be considered.

The safety of the veterinary medicinal product in young puppies, kitten and foals has not been established. Use of the veterinary medicinal product in these groups should be on the basis of a risk: benefit analysis by the responsible veterinarian.

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

Precautions should be taken to avoid accidental injection/self-injection. In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician. Do not drive.

The effects of butorphanol include sedation, dizziness and confusion. Effects can be reversed with an opioid antagonist such as naloxone.

Wash splashes from skin and eyes immediately.

Special precautions for the protection of the environment:

Not applicable.

### 3.6 Adverse events

#### Horses:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Pacing <sup>1</sup> ; Ataxia, Sedation; Digestive tract hypomotility; Cardiac depression.
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<sup>1</sup> Excitatory locomotor effects.

#### Dogs:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Cardiac depression; Respiratory depression <sup>1</sup> ; Anorexia; Diarrhoea, Digestive tract hypomotility; Injection site pain <sup>2</sup> ; Sedation.
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<sup>1</sup> Naloxone may be used as an antidote.

<sup>2</sup> Associated with intramuscular injection.

#### Cats:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Mydriasis, Disorientation, Sedation; Injection site irritation <sup>1</sup> , Immediate pain upon injection; Agitation <sup>2</sup> ; Dysphoria.
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<sup>1</sup> In case of repeated administrations.

<sup>2</sup> Mild.

Reporting adverse events is important. It allows continuous safety monitoring of a veterinary medicinal product. Reports should be sent, preferably via a veterinarian, to either the marketing authorisation holder or its local representative or the national competent authority via the national reporting system. See the package leaflet for respective contact details.

### 3.7 Use during pregnancy, lactation or lay

#### Pregnancy and lactation:

The safety of this veterinary medicinal product has not been established in the target species during pregnancy and lactation. The use of the veterinary medicinal product during pregnancy and lactation is not recommended.

### 3.8 Interaction with other medicinal products and other forms of interaction

Butorphanol may be used in combination with other sedatives such as  $\alpha$ 2-adrenoceptor agonists (e.g. romifidine or detomidine in horses, medetomidine in dogs) where synergistic effects can be expected. Therefore, an appropriate reduction in dose is necessary when used concomitantly with such agent (see section 3.9).

Because of its antagonist properties at the opiate mu ( $\mu$ ) receptor butorphanol may remove the analgesic effect in animals, which have already received pure opioid mu ( $\mu$ ) agonists (morphine/oxymorphone).

### 3.9 Administration routes and dosage

#### **For analgesia:**

##### Horses:

Intravenous use.

0.05 to 0.1 mg/kg

(i.e. 2.5 to 5 ml for 500 kg bw)

##### Dogs:

Intravenous use.

0.2 to 0.4 mg/kg

(i.e. 0.2 to 0.4 ml/10 kg bw)

Rapid intravenous injection should be avoided.

Butorphanol is intended for use where short duration analgesia is required. For information on the duration of analgesia that can be expected following treatment see section 4.2. However, repeat treatments of butorphanol may be administered. The need for, and timing of repeat treatment will be based on clinical response. For cases where longer duration analgesia is likely to be required, an alternative therapeutic agent should be used.

##### Cats:

Subcutaneous use.

0.4 mg/kg

(i.e. 0.2 ml/5 kg bw)

Cats should be weighed to ensure that the correct dose is calculated. An appropriate graduated syringe must be used to allow accurate administration of the required dose volume (e.g. insulin syringe or 1 ml graduated syringe).

In the cat, butorphanol is intended for use where short to medium duration analgesia is required. For information on the duration of analgesia that can be expected following treatment see section 4.2. Depending on the clinical response, veterinary medicinal product administration may be repeated within six hours. In the absence of an adequate analgesic response (see section 3.5), use of an alternative analgesic agent, such as another suitable opioid analgesic and/or a non-steroidal anti-inflammatory drug, should be considered. Any alternative analgesia should take account of the action of butorphanol on opioid receptors, as described in Section 3.8.

If repeated administrations are required, use different injection sites.

#### **For sedation:**

Butorphanol can be used in combination with an  $\alpha$ 2-adrenoceptor agonist (e.g. (me)detomidine or romifidine).

Adjustment of the dose will then be necessary according to the following recommendations:

##### Horses:

Intravenous use.

Detomidine: 0.01 – 0.02 mg/kg

Butorphanol: 0.01 – 0.02 mg/kg

*Detomidine should be administered up to 5 min before butorphanol*

Romifidine: 0.05 mg/kg

Butorphanol: 0.02 mg/kg

*Romifidine can be administered concurrently or 4 min before butorphanol*

Dogs:

Intramuscular use.

Medetomidine: 0.01 – 0.03 mg/kg

Butorphanol: 0.1 – 0.2 mg/kg

*Medetomidine and butorphanol can be administered concurrently.*

The stopper should not be pierced more than 25 times.

### **3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)**

The main sign of overdose is respiratory depression, which, if severe, can be reversed with an opioid antagonist (e.g. naloxone).

Other possible signs of overdose in the horse include restlessness/excitability, muscle tremor, ataxia, hypersalivation, decrease of gastrointestinal motility and seizure. In the cat, the main signs of overdose are incoordination, salivation, and mild convulsions.

### **3.11 Special restrictions for use and special conditions for use, including restrictions on the use of antimicrobial and antiparasitic veterinary medicinal products in order to limit the risk of development of resistance**

Not applicable.

### **3.12 Withdrawal periods**

Horses:

Meat and offal: zero days

Milk: zero hours

## **4. PHARMACOLOGICAL INFORMATION**

### **4.1 ATCvet code : QN02AF01**

### **4.2 Pharmacodynamics**

Butorphanol tartrate (R(-) enantiomer) is a centrally acting analgesic. Its action is agonist-antagonist at the opiate receptors in the central nervous system, agonist at the kappa ( $\kappa$ ) opioid receptor subtype and antagonist at the mu ( $\mu$ ) receptor subtype.

The kappa ( $\kappa$ ) receptors control analgesia, sedation without depression of cardiopulmonary system and body temperature, whereas the mu ( $\mu$ ) receptors control supraspinal analgesia, sedation and depression of cardiopulmonary system and body temperature.

The agonist component of butorphanol activity is ten times more potent than the antagonist component.

Onset and duration of analgesia:

Analgesia generally occurs within 15 minutes following administration in horse, dog and cat. After a single intravenous dose in the horse, analgesia usually lasts for 15 – 60 minutes. In the dog, it lasts for 15-30 minutes after a single intravenous administration. In cats with visceral pain, analgesic effect for 15 minutes up to 6 hours after butorphanol administration has been demonstrated. In cats with somatic pain, the duration of analgesia has been considerably shorter.

### **4.3 Pharmacokinetics**

In the horse, butorphanol has a high clearance (on average 1.3 L/h/kg) after intravenous administration. It has a short terminal half-life (mean <1 hour), indicating that 97% of a dose will be eliminated after intravenous administration in, on average, less than 5 hours.

In the dog, butorphanol administered by the intramuscular route has a high clearance (around 3.5 L/h/kg). It has a short terminal half-life (mean <2 hours), indicating that 97% of a dose will be eliminated after intramuscular administration in, on average, less than 10 hours. Repeated dose pharmacokinetics and the pharmacokinetics following intravenous administration have not been studied.

In the cat, butorphanol administered by the subcutaneous route has a low clearance (<1320 ml/kg/h). It has a relative long terminal half-life (around 6 hours) indicating that 97% of the dose will be eliminated in approximately 30 hours.

Repeated dose pharmacokinetics have not been studied.

Butorphanol is metabolised extensively in the liver and excreted in the urine. The volume of distribution is large, suggesting wide distribution into tissue.

## **5. PHARMACEUTICAL PARTICULARS**

### **5.1 Major incompatibilities**

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

### **5.2 Shelf life**

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.

Shelf life after first opening the immediate packaging: 28 days.

### **5.3 Special precautions for storage**

Do not refrigerate or freeze.

Protect from light.

### **5.4 Nature and composition of immediate packaging**

Cardboard box with 1 glass vial (type I) of 10 or 50 ml with a halogenated butyl rubber stopper (type I) and an aluminium cap.

Not all pack sizes may be marketed.

### **5.5 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products**

Medicines should not be disposed of via wastewater or household waste.

Use take-back schemes for the disposal of any unused veterinary medicinal product or waste materials derived thereof in accordance with local requirements and with any national collection systems applicable to the veterinary medicinal product concerned.

**6. NAME OF THE MARKETING AUTHORISATION HOLDER**

Intervet Ireland Limited

**7. MARKETING AUTHORISATION NUMBER(S)**

VPA10996/185/001

**8. DATE OF FIRST AUTHORISATION**

30/07/2006

**9. DATE OF THE LAST REVISION OF THE SUMMARY OF THE PRODUCT CHARACTERISTICS**

13/12/2024

**10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS**

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available in the [Union Product Database \(https://medicines.health.europa.eu/veterinary\)](https://medicines.health.europa.eu/veterinary).