

## **SUMMARY OF PRODUCT CHARACTERISTICS**

### **1. NAME OF THE VETERINARY MEDICINAL PRODUCT**

Enrox Flavour 50 mg tablets for dogs

### **2. QUALITATIVE AND QUANTITATIVE COMPOSITION**

Each tablet contains:

**Active substances:**

Enrofloxacin 50 mg

**Excipients:**

<b>Qualitative composition of excipients and other constituents</b>
Mannitol
Maize starch
Sodium starch glycolate (type A)
Meat flavour 10022
Sodium laurilsulphate
Basic butylated methacrylate copolymer
Dibutyl sebacate
Croscarmellose sodium
Silica, colloidal anhydrous
Talc
Magnesium stearate

Round slightly biconvex, cream to light brownish tablets with possible visible white or darker spots, one side scored. The tablets can be divided into halves.

### **3. CLINICAL INFORMATION**

#### **3.1 Target species**

Dogs.

#### **3.2 Indications for use for each target species**

The veterinary medicinal product is for use in dogs for the treatment of bacterial infections of the alimentary, respiratory and urogenital tracts, skin, secondary wound infections and otitis externa where clinical experience, supported where possible by sensitivity testing of the causal organism, indicates enrofloxacin as the drug of choice.

### **3.3 Contraindications**

Do not use in dogs less than 1 year of age or in exceptionally large breeds of dog with a longer growth period less than 18 months of age, as articular cartilage may be affected during the period of rapid growth.

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

Do not use in dogs having seizure disorders, since enrofloxacin may cause CNS stimulation.

Do not use for prophylaxis.

### **3.4 Special warnings**

None.

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

#### Special precautions for safe use in the target species:

Fluoroquinolones should be reserved for the treatment of clinical conditions which have responded poorly, or are expected to respond poorly to other classes of antimicrobials. Whenever possible, use of fluoroquinolones should be based on susceptibility testing. Use of the veterinary medicinal product deviating from the instructions given in the SPC may increase the prevalence of bacteria resistant to the fluoroquinolones and may decrease the effectiveness of treatment with other quinolones due to the potential for cross-resistance. Official and local antimicrobial policies should be taken into account when the veterinary medicinal product is used.

Do not use in case of resistance to quinolones, as there exists almost complete cross resistance to other quinolones and complete cross resistance to other fluoroquinolones.

Do not exceed the recommended dosage.

Use the veterinary medicinal product with caution in dogs with severe renal or hepatic impairment.

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

Wash hands after use.

In case of contact with the eyes, wash with plenty of clean water.

In case of accidental ingestion, seek medical advice immediately and show the package leaflet or the label to the physician.

People with known hypersensitivity to (fluoro)quinolones should avoid contact with the veterinary medicinal product.

#### Special precautions for the protection of the environment:

Not applicable.

### 3.6 Adverse events

Dogs:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Anorexia Vomiting
Undetermined frequency (cannot be estimated from the available data)	Joint cartilage disorder <sup>1</sup>

<sup>1</sup>During the period of rapid growth, articular cartilage development may be affected.

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

Lactation:

Enrofloxacin passes into maternal milk. Use only according to the benefit-risk assessment by the responsible veterinarian.

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

Do not combine with tetracyclines, phenicols or macrolides because of potential antagonistic effects.

Concurrent administration of fluoroquinolones may increase the action of oral anticoagulants.

Do not combine with theophylline as this could lead to a prolonged elimination of this substance.

Concurrent administration of magnesium or aluminum containing substances may be followed by retarded absorption of enrofloxacin.

### 3.9 Administration routes and dosage

Oral use.

Do not exceed the recommended dose. The dosage rate of enrofloxacin is 5 mg/kg given orally once daily or as a divided dose twice daily for 5 to 10 days with or without food.

The duration of treatment in dogs may be extended depending on the clinical response and the judgement of the responsible veterinary surgeon.

To ensure a correct dosage, body weight should be determined as accurately as possible.

The daily dose is achieved as follows:  
Medium dogs: one tablet per 10 kg body weight.

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

In accidental overdose vomiting, diarrhoea and CNS/behavioural changes may occur. There is no antidote and treatment should be symptomatic. If necessary, administration of aluminium- or magnesium-containing antacids or activated carbon can be used to reduce absorption of enrofloxacin.

### **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**

Not applicable.

## **4. PHARMACOLOGICAL INFORMATION**

### **4.1 ATCvet code: QJ01MA90.**

### **4.2 Pharmacodynamics**

Enrofloxacin is bactericidal in action with activity against Gram positive and Gram negative bacteria and mycoplasmas. The mechanism of action of the quinolones is unique among antimicrobials – they act primarily to inhibit bacterial DNA gyrase, an enzyme responsible for controlling the super coiling of bacterial DNA during replication. Resealing of the double standard helix is inhibited resulting in irreversible degradation of the chromosomal DNA. The fluoroquinolones also possess activity against bacteria in the stationary phase by an alteration of the permeability of the outer membrane phospholipid cell wall.

Susceptibility of selected canine pathogens (MIC) is as follows:

- *Pasteurella multocida*: 0.03 mg/L;
- *Escherichia coli*: 0.03-0.06 mg/L;
- *Staphylococcus pseudointermedius*: 0.125 mg/L;
- *Pseudomonas aeruginosa*: 2.0 mg/L.

Susceptibility breakpoints are: sensitive  $\leq 0.5$  mg/L; intermediate 1-2 mg/L; resistant  $\geq 4$  mg/L.

Bacterial resistance to fluoroquinolones most commonly occurs by alteration of the target, DNA-gyrase, via mutation. Less commonly mutation occurs at the topoisomerase-IV target. Other mechanisms of resistance occur when bacteria decrease the ability of the drug to enter the cell or increase active transport out of the cell. Resistance is usually chromosomally developed and, therefore, remains after antimicrobial therapy ends. Cross-resistance of enrofloxacin with other

fluoroquinolones can occur. Changes in levels of resistance to fluoroquinolones over time by *Campylobacter* and *Salmonella* species are being monitored because of their possible impact on human health.

### 4.3 Pharmacokinetics

The pharmacokinetics of enrofloxacin in dogs is such that oral and parenteral administration leads to similar serum levels.

Enrofloxacin is rapidly absorbed after oral, intramuscular and subcutaneous administration.

In the study conducted in dogs the dose of enrofloxacin administered was 4.91 mg/kg. The maximal plasma concentration was  $1179.94 \pm 260.83$  ng/ml,  $T_{max}$  was  $1.57 \pm 0.62$  hours, half life 3.78 hours (harmonic mean) and  $AUC_{tot}$  value  $4037 \pm 1155.82$  ngh/ml.

Approximately 40% of the oral or intravenous enrofloxacin dose administered in dogs is metabolised to ciprofloxacin.

The mean maximal concentration for ciprofloxacin reached  $491.99 \pm 57.95$  ng/ml,  $T_{max}$   $1.79 \pm 2.6$  hours and the apparent terminal half-life was 5.10 hours (harmonic mean). The mean  $AUC_{tot}$  for ciprofloxacin was  $3737.21 \pm 562.65$  ngh/ml.

Enrofloxacin possesses a high distribution volume. Tissue levels 2-3 times higher than that found in the serum, have been demonstrated in laboratory animals and target species. Organs in which high levels can be expected are the lungs, liver, kidney, skin, bone and lymphatic system. Enrofloxacin also distributes into the cerebrospinal fluid, the aqueous humour and the foetus in pregnant animals.

The elimination of enrofloxacin is renal, primarily through glomerular filtration and tubular secretion.

## 5. PHARMACEUTICAL PARTICULARS

### 5.1 Major incompatibilities

Not applicable.

### 5.2 Shelf life

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

Return any halved tablet to the opened blister pack and use within 24 hours.

### 5.3 Special precautions for storage

This veterinary medicinal product does not require any special storage conditions.

### 5.4 Nature and composition of immediate packaging

Polyamide/Aluminium/Polyvinyl chloride film (OPA/Al/PVC), heat sealed with aluminium foil containing 10 tablets / blister. Each cardboard carton contains 100 tablets in 10 blister packs.

Polyamide/Aluminium/Polyvinyl chloride film (OPA/Al/PVC), heat sealed with aluminium foil containing 10 tablets / blister. Each cardboard carton contains 10 tablets in 1 blister pack.

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.

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**

KRKA, d.d., Novo mesto

### **7. MARKETING AUTHORISATION NUMBER**

Vm 01656/4008

### **8. DATE OF FIRST AUTHORISATION**

18 June 2009

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

November 2024

### **10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS**

Veterinary medicinal product subject to prescription.

Find more product information by searching for the 'Product Information Database' on [www.gov.uk](http://www.gov.uk).

*Gavin Hall*  
Approved: 27 January 2025