SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

XEDEN 50 mg tablet for dogs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance:
One tablet contains:
Enrofloxacin.....50.0 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Tablet
Clover-shaped scored beige tablet
The tablet can be divided into four equal parts.

4. CLINICAL PARTICULARS

4.1 Target species

Dogs

4.2 Indications for use, specifying the target species

In dogs:
- Treatment of lower urinary tract infections (associated or not with prostatitis) and upper urinary tract infections caused by *Escherichia Coli* or *Proteus mirabilis*.
- Treatment of superficial and deep pyoderma.

4.3 Contraindications

Do not use in young or growing dogs (dogs aged less than 12 months (small breed) or less than 18 months (large breed)) as the product may cause epiphyseal cartilage alterations in growing puppies.
Do not use in dogs having seizure disorders, since enrofloxacin may cause CNS stimulation.
Do not use in dogs with known hypersensitivity to fluoroquinolones or to any of the excipients of the product.
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.
See also section 4.7 and 4.8.

4.4 Special warnings for each target species

None

4.5 Special precautions for use

Special precautions for use in animals

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.
Wherever possible, fluoroquinolones should be used based on susceptibility testing.
Use of the product deviating from instructions given in the SPC may increase the prevalence of bacteria resistant to 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 product is used.
Use the product with caution in dogs with severe renal or hepatic impairment.
Pyoderma is mostly secondary to an underlying disease. It is advisable to determine the underlying cause and to treat the animal accordingly.
The chewable tablets are flavoured. In order to avoid any accidental ingestion, store tablets out of reach of the animals.

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

Persons with a known hypersensitivity to (fluoro)quinolones should avoid any contact with the product.
In case of accidental ingestion, seek medical advice immediately and show the package leaflet to the physician.
Wash hands after handling the product
In case of contact with eyes, rinse immediately with plenty of water.

4.6 Adverse reactions (frequency and seriousness)

Possible joint cartilage alterations in growing puppies (see 4.3 contra-indications).
In rare cases vomiting and anorexia are observed.
In rare cases, hypersensitivity reactions may occur. In this case, the administration of the product should be stopped.
Neurological signs (seizures, tremors, ataxia, excitation) can occur.

4.7 Use during pregnancy, lactation or lay

Use during pregnancy: Laboratory studies in laboratory animals (rat, chinchilla) have not produced any evidence of a teratogenic, foetotoxic, maternototoxic effect. Use only according to the benefit/risk assessment by the responsible veterinarian.

Use during lactation: As enrofloxacin passes into the maternal milk, the use is not recommended during lactation.

4.8 Interaction with other medicinal products and other forms of interaction

Concurrent use of flunixin should be under careful veterinary monitoring, as the interactions between these drugs may lead to adverse events related to delayed elimination.
Concomitant administration of theophylline requires careful monitoring as serum levels of theophylline may increase.
Concurrent use of magnesium or aluminum containing substances (such as antacids or sucralfate) may reduce absorption of enrofloxacin. These drugs should be administered two hours apart.
Do not use with tetracyclines, phenicols or macrolides because of potential antagonistic effects.

4.9 Amounts to be administered and administration route

Oral use
5 mg of enrofloxacin/kg/day as a single daily dosing, i.e. one tablet for 10 kg daily for:

- 10 days in lower urinary tract infections
- 15 days in upper urinary tract infections and lower urinary tract infections associated with prostatitis
- Up to 21 days in superficial pyoderma depending on clinical response
- Up to 49 days in deep pyoderma depending on clinical response

The treatment should be reconsidered in case of lack of clinical improvement at half of the treatment duration.

XEDEN 50 mg Number of tablets per day	XEDEN 150 mg Number of tablets per day	Dog weight (kg)
¼		≥ 2 - < 4
½		≥ 4 - < 6.5
¾	¼	≥ 6.5 - < 8.5
1	¼	≥ 8.5 - < 11
1 ¼	½	≥ 11 - < 13.5
1 ½	½	≥ 13.5 - < 17
	¾	≥ 17 - < 25
	1	≥ 25 - < 35
	1 ¼	≥ 35 - < 40
	1 ½	≥ 40 - < 50
	1 ¾	≥ 50 - < 55
	2	≥ 55 - < 65

To ensure a correct dosage body weight should be determined as accurately as possible to avoid underdosing.
The tablets are flavoured, and are well accepted by dogs. The tablets may be administered directly in the mouth of the dog or simultaneously with food if necessary.
Instruction on how to divide the tablet: Put the tablet on an even surface, with its scored side facing down (convex face up). With the tip of the forefinger, exert slight vertical pressure on the middle of the tablet to break it along its width into halves. Then, in order to obtain quarters, exert slight pressure on the middle of one half with the forefinger to break it into two parts.

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

Overdosing can cause vomiting and nervous signs (muscle tremor, incoordination and convulsions) which may require treatment discontinuation.
In the absence of any known antidote, apply drug elimination methods and symptomatic treatment.
If necessary, administration of aluminium- or magnesium-containing antacids or activated carbon can be used to reduce absorption of enrofloxacin.
According to literature, signs of overdosage with enrofloxacin in dogs such as inappetence and gastrointestinal disturbance were observed at approximately 10 times the recommended dose when administered for two weeks. No signs of intolerance were observed in dogs administered 5 times the recommended dose for a month.

4.11 Withdrawal period(s)

Not applicable.

5. PHARMACOLOGICAL PROPERTIES

ATCvet code: QJ01MA90
Pharmacotherapeutic group: Fluoroquinolones

5.1 Pharmacodynamic properties

Enrofloxacin is a synthetic fluoroquinolone antibiotic that exerts its activity by inhibiting topoisomerase II, an enzyme involved in the mechanism of bacterial replication.

Enrofloxacin exerts bactericidal activity concentration-dependant with similar values of minimal inhibit concentration and minimal bactericide concentrations. It also possesses activity against bacteria in the stationary phase by an alteration of the permeability of the outer membrane phospholipid cell wall.

In general, enrofloxacin exhibits good activity against most gram-negative bacteria, especially those of the Enterobacteriacea. *Escherichia coli*, *Klebsiella spp*., *Proteus spp*., and *Enterobacter spp*. are generally susceptible.
Pseudomonas aeruginosa is variably susceptible and, when it is susceptible, usually has a higher MIC than other susceptible organisms.
Staphylococcus aureus and *Staphylococcus intermedius* usually are susceptible.
Streptococci, enterococci, anaerobic bacteria can generally be considered resistant.

Induction of resistance against quinolones can develop by mutations in the gyrase gene of bacteria and by changes in cell permeability towards quinolones.

5.2 Pharmacokinetic particulars

Enrofloxacin is rapidly metabolised to form an active compound, ciprofloxacin.
After oral administration of XEDEN 50 (5 mg/kg) in dogs:

- The maximal plasma concentration of enrofloxacin of 1.72 µg/mL was observed one hour following administration.
- The maximal plasma concentration of ciprofloxacin (0.32 µg/mL) was observed two hours following administration.

Enrofloxacin is primarily excreted via the kidneys. A major portion of the parent drug and its metabolites is recovered in urine.
Enrofloxacin is widely distributed in the body. The tissue concentrations are often higher than the serum concentrations. Enrofloxacin crosses the blood-brain barrier. The degree of protein binding in serum is 14% in dogs. The half-life in serum is 3-5 hours in dogs (5 mg/kg). Approximately 60 % of the dose is excreted as unchanged enrofloxacin and the remainder as metabolites, amongst others ciprofloxacin. The total clearance is approximately 9 ml/minute/kg bodyweight in dogs.

Environmental properties

Not applicable

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Pig liver powder
Yeast
Cellulose microcrystalline
Croscarmellose sodium
Copovidone
Silica colloidal anhydrous
Hydrogenated castor oil
Lactose monohydrate

6.2 Incompatibilities

Not known.

6.3 Shelf life

Shelf-life of the veterinary medicinal product as packaged for sale:
3 years
Shelf-life of divided tablets:
72 hours

6.4 Special precautions for storage

Store in the original container
Protect from light
This medicinal product does not require any special temperature storage conditions.
Any divided tablets should be returned to the original blister for storage.
Any divided tablets remaining after 72 hours should be discarded.

6.5 Nature and composition of immediate packaging

Blister complex: PVDC-TE-PVC/Aluminium heat sealed blisters with 10 tablets / blister
Cardboard box with 1 blister of 10 tablets
Cardboard box with 10 blisters of 10 tablets

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 products should be disposed of in accordance with local requirements.

7. MARKETING AUTHORISATION HOLDER

Ceva Animal Health Ltd
Explorer House
Mercury Park
Wycombe Lane
Wooburn Green
High Wycombe
Buckinghamshire
HP10 0HH
United Kingdom

8. MARKETING AUTHORISATION NUMBER

Vm 15052/4123

9. DATE OF FIRST AUTHORISATION

29 October 2008

10. DATE OF REVISION OF THE TEXT

October 2022

Approved 17 October 2022