SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

CENFLOX 200 mg/ml solution for use in drinking water for chickens, turkeys and rabbits

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

Active substance:
Enrofloxacin ..... 200 mg

Excipients:

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for use in drinking water
Clear, light yellow solution

4. CLINICAL PARTICULARS

4.1 Target species

Chickens, turkeys and rabbits.

4.2 Indications for use, specifiying the target species

Chickens

Treatment of infections caused by the following bacteria susceptible to enrofloxacin:
Mycoplasma gallisepticum,
Mycoplasma synoviae,
Avibacterium paragallinarum,
Pasteurella multocida.

Turkeys

Treatment of infections caused by the following bacteria susceptible to enrofloxacin:
Mycoplasma gallisepticum,
Mycoplasma synoviae,
Pasteurella multocida.

Rabbits

For the treatment infectious diseases due to *Pasteurella multocida* and bacterial enteritis due to infection with *E.coli.*

Enrofloxacin should be used where clinical experience, supported where possible by sensitivity testing of the causal organism, indicates enrofloxacin as the active substance of choice.

4.3 Contraindications

Do not use for prophylaxis.

Do not use when resistance/cross-resistance to (fluoro)quinolones is known to occurs in the flock intended for treatment.

Do not use in the case of known hypersensitivity to the active substance, other (fluoro)quinolones or to any of the excipients.

4.4 Special warnings for each target species

Treatment of *Mycoplasma spp*. infections may not eradicate the organism.

4.5 Special preacautions for use

Special precautions for use in animals

Official and local antimicrobial policies should be taken into account when the product is used.

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, fluoroquinolones should only be used based on susceptibility testing.

Use of the 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 cross resistance.

Since enrofloxacin was first authorised for use in poultry, there has been widespread reduction in susceptibility of *E.coli* to fluoroquinolones and emergence of resistant organisms. Resistance has also been reported in *Mycoplasma synoviae* in the EU.

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

Those with known hypersensitivity to (fluoro)quinolones should avoid contact with this product.

Use gloves and handle carefully the product to avoid contact while its incorporation to the drinking water.

Avoid contact with skin and eyes. In case of contact immediately wash with plenty of water.

If signs appear after exposition to the product, like cutaneous rash, seek medical advice and show these precautions. Inflammation of the face, lips or eyes or breathing disturbances are more serious signs that require urgent medical attention.

Do not eat, drink or smoke whilst using the product.

4.6 Adverse reactions (frequency and seriousness)

Not known.

4.7 Use during pregnancy, lactation or lay

Not authorised for use in birds producing eggs for human consumption.
Do not administer to layer replacement birds within 14 days of coming into lay.

4.8 Interaction with other medicinal products and other forms of interaction

In vitro, an antagonism was shown, when combining fluoroquinolones with bacteriostatic antimicrobial agents such as macrolides or tetracyclines and phenicols. The simultaneous application of substances containing aluminium or magnesium can impair the absorption of enrofloxacin.

4.9 Dosage for each species, route(s) and method of adminstration

Administer in the drinking water. The dilution should be prepared daily before its administration.

Chickens and turkeys:

10 mg enrofloxacin/kg bodyweight, equivalent to 0.05 ml veterinary medicinal product/kg bodyweight, per day for 3-5 consecutive days.

Treatment for 5 consecutive days in mixed infections and chronic progressive forms. If no clinical improvement is achieved within 2-3 days, alternative antimicrobial therapy should be considered based on susceptibility testing.

Administration in drinking water. Always make sure that the entire dose offered has been consumed. The medicated water should be made up fresh each day just before it is offered to the animals. The drinking water must be medicated throughout the treatment period, and no other water source should be available. Determine the bodyweight of the birds as accurately as possible in order to avoid underdosing.

Use only fresh pre-solutions, prepared every day before start of treatment. Pumping systems should be checked constantly to assure proper medication. Empty the water system and fill it with medicated water before starting the treatment.

Calculate the daily quantity (ml) of product required for treatment period as follows:

Total number of birds x Average body weight in kg x 0.05= Total volume (ml) per day

Rabbits:

10 mg of enrofloxacin/kg b.w., equivalent to 0.05 ml veterinary medicinal product/kg b.w., per day for 5 consecutive days.

Calculate the daily quantity (ml) of product required for treatment period as follows:

Total number of rabbits x Average body weight in kg x 0.05= Total volume (ml) per day

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

No adverse clinical symptoms were observed in chickens and turkeys treated respectively with doses up to 10 and 6 times higher than the therapy dose.

The use of fluoroquinolones during the growth phase combined with a marked and prolonged increase in the intake of drinking water, and hence active ingredient, possibly due to high temperatures, may potentially be associated with damage of the articular cartilage.

4.11 Withdrawal period

Chickens: Meat and offal: 7 days
Turkeys: Meat and offal: 13 days
Rabbits: Meat and offal: 3 days

Not authorised for use in birds producing eggs for human consumption.

Do not administer to layer replacement birds within 14 days of coming into lay.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: Quinolone and quinoxaline antibacterials, fluoroquinolones.
ATCvet Code: QJ01MA90.

5.1 Pharmacodynamic properties

Mode of action

Two enzymes essential in DNA replication and transcription, DNA gyrase and topoisomerase IV, have been identified as the molecular targets of fluoroquinolones. They modulate the topological state of DNA through cleaving and resealing reactions. Initially, both strands of the DNA double helix are cleaved. Then, a distant segment of DNA is passed through this break before the strands are resealed. Target inhibition is caused by non-covalent binding of fluoroquinolone molecules to an intermediate state in this sequence of reactions, in which DNA is cleaved, but both strands are retained covalently attached to the enzymes. Replication forks and translational complexes cannot proceed beyond such enzyme-DNA-fluoroquinolo
ne complexes, and inhibition of DNA and mRNA synthesis triggers events resulting in a rapid, drug concentration-dependent killing of pathogenic bacteria.

Antibacterial spectrum:

Enrofloxacin is active against many Gram-negative bacteria, against Gram-positive bacteria and *Mycoplasma spp.*

In vitro susceptibility has been shown in strains of (i) Gram-negative species such as *Escherichia coli*, *Pasteurella multocida* and *Avibacterium* (*Haemophilus*) *paragallinarum* and (ii) *Mycoplasma gallisepticum* and *Mycoplasma synoviae*. (See section 4.5)

Types and mechanisms of resistance:

Resistance to fluoroquinolones has been reported to arise from five sources, (i) point mutations in the genes encoding for DNA gyrase and/or topoisomerase IV leading to alterations of the respective enzyme, (ii) alterations of drug permeability in Gram-negative bacteria, (iii) efflux mechanisms, (iv) plasmid mediated resistance and (v) gyrase protecting proteins.

All mechanisms lead to a reduced susceptibility of the bacteria to fluoroquinolones.
Cross-resistance within the fluoroquinolone class of antimicrobials is common.

5.2 Pharmacokinetic particulars

Enrofloxacin administered via drinking water to poultry is rapidly and very well absorbed with a bioavailability of approx. 90%. Maximum plasma concentrations of 2 mg/L are reached within 1.5 hours after a single bolus dose rate of 10mg/kg body weight with a total systemic availability of 14.4 mg·hr/L. Enrofloxacin is eliminated from the body with a total body clearance of

10.3mL/min·kg. If dosed as continuous drinking water medication (multiple dosing) steady-state concentrations of 0.5 mg (turkeys) to 0.8 mg (chicken) enrofloxacin per litre are achieved. A high mean volume of distribution (5 L/kg) indicates good tissue penetration of enrofloxacin. Concentrations in target tissues like lungs, liver, kidney, intestine and muscle tissue, exceed plasma concentrations by far. In poultry enrofloxacin is poorly metabolized to its active metabolite ciprofloxacin (approximately 5%). Enrofloxacin is eliminated from the body at a half-life of 6 hours. Protein binding in poultry is approximately 25%.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Potassium hydroxide
Water, purified

6.2 Incompatibilities

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

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.
Shelf life after first opening the immediate packaging: 6 months.
Shelf life after dilution or reconstitution according to directions: 24 hours.

6.4. Special preacutions for storage

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

6.5 Nature and composition of immediate packaging

Bottles and barrels of high density polyethylene, closed with a polyethylene screw cap and disc for thermo induction.

Pack size:
1L bottle
5L barrel

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

CENAVISA S.L.
Camí Pedra Estela s/n
43205 Reus (SPAIN)

8. MARKETING AUTHORISATION NUMBER(S)

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

10. DATE OF REVISION OF THE TEXT

PROHIBITION OF SALE, SUPPLY AND/OR USE

Dispensing conditions: To be supplied only on veterinary prescription.
Administration conditions: Administration by a veterinarian surgeon or under their direct responsibility.