SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Nuflor Minidose 450 mg/ml solution for injection for cattle

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

1 ml of the solution for injection contains:

Active substance:
Florfenicol 450 mg

Excipients:
N-methylpyrrolidone 350 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Clear, colourless to yellow solution for injection.

4. CLINICAL PARTICULARS

4.1 Target species

Cattle.

4.2 Indications for use, specifying the target species

Metaphylactic and therapeutic treatment of respiratory tract infections in cattle due to *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* susceptible to florfenicol. The presence of the disease in the herd should be confirmed before metaphylactic treatment.

4.3 Contraindications

Do not use in adult bulls intended for breeding purposes.
Do not use in case of hypersensitivity to the active substance or to any of the excipients.

4.4 Special warnings for each target species

None.

4.5 Special precautions for use

Special precautions for use in animals
The product should be used in conjunction with susceptibility testing and take into account official and local antimicrobial policies.
Do not use where resistance to florfenicol or other amphenicols is known to occur.
Inappropriate use of the veterinary medicinal product may increase the prevalence of bacteria resistant to florfenicol and other amphenicols.
The prolonged or repeated use of the veterinary medicinal product should be avoided by improving farming management practices, cleaning and disinfection measures and eliminating any stress condition.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
Care should be taken to avoid accidental self-injection. In case of self-injection, seek medical advice immediately and show the package leaflet or the label to the physician. Avoid direct contact with skin, mouth and eyes. Wash hands after treatment.

Laboratory studies in rabbits and rats with the excipient N-methylpyrrolidone have shown evidence of foetotoxic effects. Women of childbearing age, pregnant women or women suspected of being pregnant should use the veterinary medicinal product with serious caution to avoid accidental self-injection.

The veterinary medicinal product may cause hypersensitivity (allergy) in some people. People with known hypersensitivity to florfenicol should avoid contact with the veterinary medicinal product.

Special precautions for the protection of the environment:
Not applicable.

Other precautions
Not applicable.

4.6 Adverse reactions (frequency and seriousness)

Cattle:

Very common (>1 animal / 10 animals treated):	Injection site pain[1,2,3], Injection site swelling[1,4], Injection site inflammation [1,5], Injection site lesion[1,5]
Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Reduced food intake[6]; Soft stool[2,6]

[1] After injection of the product at the maximum recommended volume of 10 mL per injection site
[2] Transient
[3] Lasting for some days

[4] Lasting up to 61 days after subcutaneous and up to 24 days after intramuscular injection
[5] Seen at necropsy and lasting for 37 days after intramuscular injection
[6] Quick and complete recovery upon termination of treatment
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 also section "Contact details" of the package leaflet.

4.7 Use during pregnancy, lactation or lay

Pregnancy and lactation:
The safety of the veterinary medicinal product has not been established in cattle during pregnancy, lactation or in animals intended for breeding. Studies in laboratory animals have not revealed any evidence of embryo- or foetotoxic potential for florfenicol. Laboratory studies in rabbits and rats with the excipient N-methylpyrrolidone have shown evidence of foetotoxic effects.

Use only according to the benefit-risk assessment by the responsible veterinarian.

Fertility:
Do not use in adult bulls intended for breeding (see section 4.3).

4.8 Interaction with other medicinal products and other forms of interaction

None known.

4.9 Amount(s) to be administered and administration route

Subcutaneous use: 40 mg/kg body weight (4 ml/45 kg) to be administered once only.
Intramuscular use: 20 mg/kg body weight (2 ml/45 kg) to be administered twice 48 hours apart.

The injection should only be given in the neck. The dose volume given at any one injection site should not exceed 10 ml.

To ensure a correct dosage body weight should be determined as accurately as possible to avoid underdosing.

Swab septum before removing each dose. Use a dry, sterile needle and syringe.
For 250 ml vials, do not broach the vial more than 25 times.

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

No data available.

4.11 Withdrawal period(s)

Meat and offal: Subcutaneous use (at 40 mg/kg body weight, once): 64 days.
Intramuscular use (at 20 mg/kg body weight, twice): 37 days.

Not authorised for use in animals producing milk for human consumption.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: antibacterials for systemic use.

ATCvet code: QJ01BA90

5.1 Pharmacodynamic properties

Florfenicol is a synthetic broad-spectrum antibiotic effective against most Gram-positive and Gram-negative bacteria isolated from domestic animals. Florfenicol acts by inhibiting protein synthesis at the ribosomal level and is bacteriostatic and time-dependent. Laboratory tests have shown that florfenicol is active against the most commonly isolated bacterial pathogens involved in bovine respiratory disease which include *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni*.

Florfenicol is considered to be a bacteriostatic agent, but *in vitro* studies of florfenicol demonstrate bactericidal activity against *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni*.

For *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* the following breakpoints have been determined for florfenicol in bovine respiratory disease: susceptible: ≤2 µg/ml, intermediate: 4 µg/ml, resistant: ≥8 µg/ml.

Resistance to florfenicol is mainly mediated by an efflux system due to specific (flo-R) or multidrug transporters (AcrAB-TolC). The genes corresponding to these mechanisms are coded on mobile genetic elements such as plasmids, transposons or genes cassettes.

Surveillance data of the susceptibility of target field isolates from cattle collected between 1995 and 2009 across Europe show a constant activity of florfenicol with no finding of resistant isolates. In the recent literature, one resistant isolate of *P. multocida* was reported from a calf in Germany in 2007 harbouring a plasmid mediated flo-R. No co-resistance to other antibiotic families was observed. Cross-resistance with chloramphenicol can occur.

Resistance to florfenicol and other antimicrobials has been identified in the food-borne pathogen *Salmonella typhimurium* and co-resistance with the third-generation cephalosporins has been observed in respiratory and digestive *Escherichia Coli.* This has not been observed for the target pathogens.

5.2 Pharmacokinetic particulars

After parenteral application florfenicol is mainly excreted via urine and to a small extent via faeces, mainly as parent compound but also followed by florfenicol amine and florfenicol oxamic acid.
The administration of the product by the subcutaneous route at the recommended dose of 40 mg/kg maintained efficacious plasma levels of florfenicol in cattle above the MIC_{90} of 0.5 µg/ml and 1.0 µg/ml for 90.7 hours and 33.8 hours, respectively.

Maximum mean serum concentration (Cmax) of 1.8 µg/ml occurred 7 hours (Tmax) after dosing.
The administration of the product by the intramuscular route at the recommended dose of 20 mg/kg maintained efficacious plasma levels of florfenicol in cattle above the MIC_{90} of 0.5 µg/ml and 1.0 µg/ml for 48.7 hours and 30.3 hours, respectively.
Maximum mean serum concentration (Cmax) of 3.0 µg/ml occurred 6 hours (Tmax) after dosing.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

N-methylpyrrolidone
Diethylene glycol monoethyl ether

6.2 Major 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: 2 years
Shelf-life after first opening the immediate packaging: 28 days

6.4 Special precautions for storage

This veterinary medicinal product does not require any special temperature storage conditions.
Keep the vial in the outer carton in order to protect from light.

6.5 Nature and composition of immediate packaging

Colourless type II glass multiple dose vials, sealed with bromobutyl rubber stoppers secured with aluminium overseal.

Package sizes:
1 vial of 50 ml in a cardboard box
1 vial of 100 ml in a cardboard box
1 vial of 250 ml in a cardboard box

Not all pack sizes may be marketed.

6.6 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.

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

Intervet International B.V.
Wim de Körverstraat 35
5831 AN Boxmeer
Netherlands

8. MARKETING AUTHORISATION NUMBER

Vm 06376/5046

9. DATE OF FIRST AUTHORISATION

03 October 2008

10. DATE OF REVISION OF THE TEXT

May 2025

11. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCT

Veterinary medicinal product subject to prescription.

Find more product information by searching for the 'Product Information Database' or 'PID' on www.gov.uk.

Approved 06 May 2025
Gavin Hall