1. NAME OF THE VETERINARY MEDICINAL PRODUCT

HALOCUR 0.5 mg/ml oral solution for calves

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml of the oral solution contains:

Active substance:

Halofuginone base 0.5 mg
(as lactate salt)

Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Benzoic acid (E 210)	1.00 mg
Tartrazine (E 102)	0.03 mg
Lactic acid	
Purified water	

Canary yellow homogenous clear solution.

3. CLINICAL INFORMATION

3.1 Target species

Cattle (newborn calf).

3.2 Indications for use for each target species

Prevention of diarrhoea due to diagnosed *Cryptosporidium parvum*, in farms with history of cryptosporidiosis.
Administration should start in the first 24 to 48 hours of age.

Reduction of diarrhoea due to diagnosed *Cryptosporidium parvum*.
Administration should start within 24 hours after the onset of diarrhoea.

In both cases, the reduction of oocysts excretion has been demonstrated.

3.3 Contraindications

Do not use on an empty stomach.
Do not use in case of diarrhoea established for more than 24 hours and in weak animals.
Do not use in cases of hypersensitivity to the active substance or to any of the excipients.

3.4 Special warnings

Unnecessary use of antiparasitics or use deviating from the instructions given in the SPC may increase the resistance selection pressure and lead to reduced efficacy. The decision to use the product should

be based on confirmation of the parasitic species and burden, or risk of infection based on its epidemiological features, for each herd.

3.5 Special precautions for use

Special precautions for safe use in the target species:

Administer after colostrum feeding, or after milk or milk replacer feeding only, using either a syringe or any appropriate device for oral administration.
Do not use on an empty stomach.
For treatment of anorexic calves, the product should be administered in half a litre of an electrolyte solution. The animals should receive enough colostrum according to good breeding practice.

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

Repetitive contact with the product may lead to skin allergies.
Avoid skin, eye and mucosal contact with the veterinary medicinal product.
People with known hypersensitivity to halofuginone should administer the veterinary medicinal product with caution.
Personal protective equipment consisting of gloves should be worn when handling the veterinary medicinal product.
In case of accidental spillage onto skin or eye contact wash the exposed area thoroughly with clean water. If eye irritation persists, seek medical advice immediately and show the package leaflet or the label to the physician.
Wash hands after use.

Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Cattle (newborn calf):

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Diarrhoea[1]

[1] an increase in the level of diarrhoea has been observed

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 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

Not applicable.

3.8 Interaction with other medicinal products and other forms of interaction

None known.

3.9 Administration routes and dosage

Oral use.

To be administered after feeding.
The dosage is: 100 mcg of halofuginone base / kg body weight (BW) / once a day for 7 consecutive days, i.e. 2 ml of veterinary medicinal product / 10 kg BW / once a day for 7 consecutive days.

However, in order to make the treatment easier, a simplified dosage scheme is proposed:

- 35 kg < calves ≤ 45 kg: 8 ml of the veterinary medicinal product once a day during 7 consecutive days
- 45 kg < calves < 60 kg: 12 ml of the veterinary medicinal product once a day during 7 consecutive days

For smaller or higher weights, a precise calculation should be performed (2 ml/10 kg BW).
Underdosing could result in ineffective use and may favour resistance development.
To ensure a correct dosage, body weight should be determined as accurately as possible.
The use of suitably calibrated measuring equipment is recommended.

The consecutive treatment should be done at the same time each day.

Once the first calf has been treated, all the forthcoming new-born calves must be systematically treated as long as the risk for diarrhoea due to *Cryptosporidium parvum* persists.

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

As symptoms of toxicity may occur at twice the therapeutic dose, it is necessary to apply the recommended dosage strictly. Symptoms of toxicity include diarrhoea, visible blood in faeces, decline in milk consumption, dehydration, apathy and prostration. Should clinical signs of overdosing occur the treatment must be stopped immediately and the animal fed unmedicated milk or milk replacer. Rehydration may be necessary.

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

Meat and offal: 13 days

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QP51BX01

4.2 Pharmacodynamics

The active substance, halofuginone, is an antiprotozoal agent of the quinazolinone derivatives group (nitrogenous polyheterocycles). Halofuginone lactate (RU 38788) is a salt whose antiprotozoal properties and efficacy against *Cryptosporidium parvum* have been demonstrated both in *in vitro* conditions and in artificial and natural infections. The compound has a cryptosporidiostatic effect on *Cryptosporidium parvum*. It is mainly active on the free stages of the parasite (sporozoite, merozoite).

The concentrations to inhibit 50 % and 90 % of the parasites, in an *in vitro* test system, are IC_{50} < 0.1 µg/ml and IC_{90} of 4.5 µg/ml respectively.

4.3 Pharmacokinetics

The bioavailability of the drug in the calf, following single oral administration, is about 80 %. The time necessary to obtain the maximum concentration T_{max} is 11 hours. The maximum concentration in plasma C_{max} is 4 ng/ml. The apparent volume of distribution is 10 l/kg. The plasmatic concentrations of halofuginone after repeated oral administrations are comparable to the pharmacokinetic pattern after single oral treatment. Unchanged halofuginone is the major component in the tissues. Highest values have been found in the liver and the kidney. The product is mainly excreted in the urine. The terminal elimination half-life is 11.7 hours after intravenous administration and 30.84 hours after single oral administration.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

None known.

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: 6 months.

5.3 Special precautions for storage

Store below 25 °C.

5.4 Nature and composition of immediate packaging

High-density polyethylene bottle of 500 ml containing 490 ml.
High-density polyethylene bottle of 1000 ml containing 980 ml.

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.

The veterinary medicinal product should not enter water courses as halofuginone may be dangerous for fish and other aquatic organisms.

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 International B.V.

7. MARKETING AUTHORISATION NUMBER(S)

EU/2/99/013/001-002

8. DATE OF FIRST AUTHORISATION

Date of first authorisation: 29 October 2004

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

{DD month YYYY}

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*).