1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Fludosol 200 mg/ml suspension for use in drinking water for pigs and chickens

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One ml contains:

Active substance:
Flubendazole 200 mg

Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Adipic acid	
Simethicone emulsion	
Methyl parahydroxybenzoate (E218)	0.8 mg
Propyl parahydroxybenzoate	0.2 mg
Polysorbate 80	
Propylene glycol	
Water, purified	

White to off-white suspension for use in drinking water.

3. CLINICAL INFORMATION

3.1 Target species

Pig and chicken

3.2 Indications for use for each target species

In pigs:
Treatment of helminthiasis caused by *Ascaris suum* (adult, migratory (L3) and intestinal (L4) larval stages).

In chickens:
Treatment of helminthiasis caused by *Ascaridia galli* (adult stages), *Heterakis gallinarum* (adult stages), *Capillaria* spp. (adult stages).

3.3 Contraindications

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

3.4 Special warnings

Treatment with this veterinary medicinal product only gives optimal results, if a strict hygiene of the livestock building and the pen is taken into account concurrently.
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 veterinary

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

Care should be taken to avoid the following practices because they increase the risk of development of resistance and could ultimately result in ineffective therapy:
- too frequent and repeated use of anthelmintics from the same class, over an extended period of time;
- underdosing, which may be due to underestimation of body weight, misadministration of the veterinary medicinal product, or lack of calibration of the dosing device (if any).
Suspected clinical cases of resistance to anthelmintics should be further investigated using appropriate tests (e.g. Faecal Egg Count Reduction Test). Where the results of the test(s) strongly suggest resistance to a particular anthelmintic, an anthelmintic belonging to another pharmacological class and having a different mode of action should be used. Confirmed resistance should be reported to the marketing authorisation holder or to the competent authorities.

3.5 Special precautions for use

Special precautions for safe use in the target species:
Not applicable.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
Flubendazole may cause hypersensitivity (allergy) and contact dermatitis. The veterinary medicinal product also contains parahydroxybenzoates which may cause a contact hypersensitivity reaction in previously sensitised individuals.
The veterinary medicinal product may cause skin and eye irritation.
Direct contact with the veterinary medicinal product should be avoided. Personal protective equipment consisting of gloves should be worn when handling the veterinary medicinal product. Wash hands after use.
People with known hypersensitivity to flubendazole or any of excipients (Methyl parahydroxybenzoate and/or Propyl parahydroxybenzoate) should avoid contact with the veterinary medicinal product.
In the event of eye contact, rinse thoroughly with water. In case of appearance and persistence of conjunctival redness, seek medical advice and show the package leaflet to the physician.

Special precautions for the protection of the environment
Due to concerns for the environment when the veterinary medicinal product is used in free range poultry or pigs, animals must be kept indoors during the treatment period and for 1 day after last treatment.

3.6 Adverse events

Chickens:

Undetermined frequency (cannot be estimated from the available data):	Development disorders of the feathers

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 section 'Contact details' of the package leaflet.

3.7 Use during pregnancy, lactation or lay

The safety of the veterinary medicinal product has been established during pregnancy, lactation and lay.
Pregnancy and lactation:
Can be used during pregnancy and lactation

Laboratory studies in rabbits and rats have not produced any evidence of embryotoxicity, teratogenicity at therapeutic doses. High dosages gave equivocal results. In laboratory studies in rats, there were no effects on pups during lactation.

Laying birds:
Can be used during lay.

3.8 Interaction with other medicinal products and other forms of interaction

None known.

3.9 Administration routes and dosage

In drinking water use.

Pigs:
2.5 mg flubendazole (= 0.0125 ml or 0.0134 g veterinary medicinal product) per kg body weight daily during 2 consecutive days.

Chickens:
1.43 mg flubendazole (= 0.007 ml or 0.0075 g veterinary medicinal product) per kg body weight daily during 7 consecutive days.

To ensure a correct dosage, body weight should be determined as accurately as possible. If animals are to be treated collectively rather than individually, they should be grouped according to their bodyweight and dosed accordingly, in order to prevent under- or overdosing.

Based on the recommended dose and the number and weight of animals to be treated, the exact daily concentration of the veterinary medicinal product should be calculated according to the following formula:

$$\frac{\text{ml veterinary medicinal product/ kg body weight/day} \times \text{average body weight (kg) of the animals to be treated}}{\text{average daily water intake (l/animal)}} = \text{ml veterinary medicinal product per litre of drinking water}$$

The average daily water intake should be estimated from the water consumption of the previous day and 90% of this average should be used to calculate the volume of medicated water to be prepared.

Method of administration

If a weighing scale is used the required volume can be converted based on the following calculation: quantity in g of veterinary medicinal product required per day = number of ml of veterinary medicinal product required per day x 1.075.
Accuracy of the dosing device should be thoroughly checked.

The container of the veterinary medicinal product should be shaken vigorously for 20 seconds before use.

For the use in a medication tank
Add the calculated volume of veterinary medicinal product to the volume of drinking water to be consumed and stir the suspension with a manual mixer (whisk) for at least 20 seconds until the mixture appears slightly hazy indicating it is a homogenous mixture.

For the use in a dosing pump

Add the calculated volume of veterinary medicinal product to the drinking water in the stock container of the dosing pump and stir the suspension with a manual mixer (whisk) for at least 20 seconds until the mixture appears slightly hazy indicating it is a homogenous mixture. Stir again the suspension 12 hours after the preparation of the mixture for at least 20 seconds with a manual mixer (whisk).

A homogeneous suspension after dilution of the veterinary medicinal product can already be obtained by gently stirring for at least 20 seconds until the suspension appears slightly hazy.
The maximum concentration for dilution advised is 50 ml product per litre.
Prior to and after the period of treatment, make sure the water distribution system is cleaned.
If needed, withhold drinking water for 2 hours before treatment to stimulate thirst.
The daily amount is to be added to the drinking water such that all medication will be consumed in 24 hours. Make sure the medicated water is fully consumed to avoid underdosing as it could result in ineffective use and may favour resistance development.

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

Flubendazole has a low acute oral toxicity.
In chickens, no undesirable effects have been observed after administration of up to 4 times the recommended dose for 14 days. Even at doses 4 times the recommended dose, egg quality is not altered. Only a reduction in egg weight and a slight decrease in egg production can be observed with doses of twice the recommended dose and over. Egg weight returns to normal when treatment is discontinued.

In pigs, no undesirable effects have been observed after administration at the dose of 5 x 2.5 mg of flubendazole per kg for 3 x 2 consecutive days (e.g. 12.5 mg of flubendazole over 6 days).
In the event of a massive overdose, mild transient diarrhoea can occur by the 2nd day of treatment, possibly lasting for 7 to 12 days without affecting the behaviour or performance of the animals.

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

Pigs:	Meat and offal:	4 days.
Chickens:	Meat and offal:	2 days.
	Eggs:	Zero days.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QP52AC12.

4.2 Pharmacodynamics

Flubendazole is a benzimidazole anthelmintic. It acts by binding to tubulin of the parasite, the dimeric subunit protein of the microtubules. It inhibits micro tubular assembly in absorptive cells: i.e. in intestinal cells of nematodes or the tegumental cells of cestodes. This is shown by disappearance of cytoplasmic microtubules, accumulation of secretory granules in the cytoplasm due to a block in their transport, leading to an impaired coating of the cellular membrane and a decreased digestion and absorption of nutrients. Irreversible lytic degeneration of the cell, due to the accumulation of secretory substances (hydrolytic and proteolytic enzymes), results in the death of the parasite. These changes are relatively fast and are primarily seen in those organelles directly involved in the secretory and absorptive functions of the cells. In contrast the changes are not seen in cells of the host. Another

tubulin-related effect is the strong inhibition of egg hatch by inhibition of microtubule-dependent processes in the developing worm egg (cell division).

4.3 Pharmacokinetics

Flubendazole is poorly soluble in aqueous systems, such as the gastrointestinal tract, which results in a low dissolution rate and a low absorption. This is reflected by the high faecal excretion of unchanged parent drug. The small fraction absorbed is extensively metabolised by first-pass metabolism in the liver, involving carbamate hydrolysis and ketone reduction. The biotransformation products are conjugated to glucuronides or sulphate conjugates and excreted with the bile and the urine.
The excretion with urine is relatively low and consists almost exclusively of metabolites with only small amounts of unchanged compound.
In pigs and chicken, the half-life of flubendazole and its metabolites in plasma is 12 hours to 2 days.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

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

5.2 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 2 years.
Shelf life after first opening of the immediate packaging: 3 months.
Shelf life after dilution according to directions: 24 hours. For pre-dilutions additional stirring at 12 h is required.

5.3 Special precautions for storage

Do not store above 25°C.

5.4 Nature and composition of immediate packaging

Round high density polyethylene (HDPE) bottle of 250 mL or 1 L, closed by a HDPE screw cap.
Round HDPE bottle of 1 L, closed by a low-density polyethylene (LDPE) screw cap.
HDPE jerrycan of 5 L, closed by a white, HDPE screw cap.

Not all pack sizes may be marketed.

5.5 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products

Medicines should not be disposed of via wastewater or household waste.
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

Dopharma Research B.V.

7. MARKETING AUTHORISATION NUMBER(S)

VPA10791/017/001

8. DATE OF FIRST AUTHORISATION

30/06/2023

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

21/12/2023

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).