SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Flunex 50 mg/ml solution for injection for cattle, pigs and horses

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

Active substance:
Flunixin 50.0 mg
(equivalent to 82.9 mg of flunixin meglumine)

Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Phenol	5.0 mg
Disodium edetate	
Propylene glycol	
Trisodium phosphate dodecahydrate	
Hydrochloric acid, dilute	
Sodium hydroxide	
Water for injections	

Clear and colourless to light yellow solution, free from visible particles.

3. CLINICAL INFORMATION

3.1 Target species

Cattle, pigs and horses

3.2 Indications for use for each target species

Cattle:
Reduction of clinical signs during respiratory infection in combination with appropriate anti-infective treatment.
Pigs:
Postpartum dysgalactia syndrome (Mastitis-metritis-agalactia) in sows.
Reduction of fever in respiratory diseases in addition to specific antibiotic therapy.
Horses:
Treatment of inflammation and pain relief in musculoskeletal conditions and pain associated with colic.

3.3 Contraindications

Do not use in animals with chronic musculo-skeletal disorders.
Do not use in animals with liver, cardiac or renal disease.
Do not use in animals with gastrointestinal ulceration or bleeding.
Do not use in cases of bleeding disorders.
Do not use in cases of hypersensitivity to the active substance, to other NSAIDs or to any of the excipients.
Do not use in animals suffering from colic caused by ileus and associated with dehydration.
Do not use in cattle within 48 hours before expected parturition in cows.
See section “Use during pregnancy, lactation or lay”.

3.4 Special warnings

The underlying cause of inflammation or colic should be determined and treated concurrently with an
appropriate therapy.

3.5 Special precautions for use

Special precautions for safe use in the target species:
The use of the veterinary medicinal product in animals under 6 weeks old (cattle and horses) or in old animals increases the risks associated with the use of the veterinary medicinal product. If the use of the veterinary medicinal product cannot be avoided, a dose reduction and careful clinical monitoring should be considered.
It is preferable to avoid the administration of NSAIDs to animals under general anaesthesia before they wake up completely, because NSAIDs inhibit the synthesis of prostaglandins.
Use in dehydrated, hypovolaemic or hypotensive animals should be avoided except in cases of endotoxaemia or septic shock.
In rare cases, life-threatening states of shock may occur after intravenous injection, due to the presence of large quantities of propylene glycol in this veterinary medicinal product. The veterinary medicinal product must therefore be injected slowly and administered at body temperature. At the first signs of general intolerance, stop administering the veterinary medicinal product and treat the shock, if necessary.
Due to its anti-inflammatory properties, flunixin meglumine may mask clinical signs and hence any resistance to the antibiotic treatment of the cause.
Flunixin is toxic to avian scavengers. Do not administer to animals susceptible to enter wild fauna food chain. In case of death or sacrifice of treated animals, ensure that they are not made available to wild fauna.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
The veterinary medicinal product may cause allergic reactions in sensitised individuals. People with known hypersensitivity to substances belonging to the non-steroidal anti-inflammatory group should avoid contact with the veterinary medicinal product.
Laboratory studies with flunixin have shown evidence of foetotoxic effects in rats. Pregnant women should use the product with caution to avoid accidental self-injection.
The veterinary medicinal product can cause skin and eye irritation. Avoid contact with the skin and eyes. In the event of skin contact, wash exposed area immediately with soap and water.

In the event of contact with the eyes, rinse immediately with plenty of water.
If skin / eye irritation persists, seek medical advice immediately and show the package leaflet or the label to the physician.
To avoid risk of ingestion, it is recommended not to eat or drink when using the veterinary medicinal product.
In case of accidental self-injection or ingestion, seek medical advice immediately and show the package leaflet or the label to the physician.

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

3.6 Adverse events

Cattle:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Anaphylaxis (with collapse)[1] Death[1]
Undetermined frequency: (cannot be estimated from the available data)	Injection site reaction[2] Bleeding[3] Gastrointestinal irritation[3] Gastrointestinal ulceration[3] Vomiting[3] Renal disorder[3,4] Hepatic disorder[4] Delayed parturition[5], stillbirths[5], retained placenta[6]

[1] Mainly after rapid intravenous administration
[2] After intramuscular administration
[3] Mainly in dehydrated or hypovolaemic animals
[4] As with other NSAIDs, rare renal or idiosyncratic hepatic adverse reactions may be observed.
[5] Through a tocolytic effect by inhibiting prostaglandins that are important in signalling the initiation of parturition
[6] In cases of the use of the veterinary medicinal product in the immediate post-partum period

Pigs:

Undetermined frequency: (cannot be estimated from the available data)	Bleeding[1] Gastrointestinal irritation[1] Gastrointestinal ulceration[1] Vomiting[1] Renal disorder[1,2] Hepatic disorder[2] Delayed parturition[3], stillbirths[3], retained placenta[4]

[1] Mainly in dehydrated or hypovolaemic animals
[2] As with other NSAIDs, rare renal or idiosyncratic hepatic adverse reactions may be observed.
[3] Through a tocolytic effect by inhibiting prostaglandins that are important in signalling the initiation of parturition

[4] In cases of the use of the veterinary medicinal product in the immediate post-partum period

Horses:

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Anaphylaxis (with collapse)[1] Death[1]
Undetermined frequency: (cannot be estimated from the available data)	Bleeding [2] Gastrointestinal irritation[2] Gastrointestinal ulceration[2] Blood in faeces[3], diarrhoea (liquid)[3] Vomiting[2] Renal disorder[2,4] Hepatic disorder[4] Delayed parturition[5], stillbirths[5], retained placenta[6]

[1] Mainly after rapid intravenous administration
[2] Mainly in dehydrated or hypovolaemic animals
[3] After intravenous administration
[4] As with other NSAIDs, rare renal or idiosyncratic hepatic adverse reactions may be observed.
[5] Through a tocolytic effect by inhibiting prostaglandins that are important in signalling the initiation of parturition
[6] In cases of the use of the veterinary medicinal product in the immediate post-partum period

If adverse effects occur, discontinue treatment and seek veterinary advice.

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 the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

Studies in laboratory animals have produced evidence of foetotoxicity from flunixin after oral administration (rabbit and rat) and intramuscular administration (rat) at maternotoxic doses as well as an increase in the gestation period (rat).

Pregnancy and fertility:
The safety of flunixin has not been assessed in pregnant mares, breeding stallions and bulls. Do not use in these animals.
The safety of flunixin was demonstrated in pregnant cows and sows, as well as boars. The veterinary medicinal product may be used in these animals except within the 48 hours preceding parturition (see sections 3.3 and 3.6).
The veterinary medicinal product should only be administered within the first 36 hours post-partum following a benefit/risk assessment performed by the responsible veterinarian, and treated animals should be monitored for retained placentae.

3.8 Interaction with other medicinal products and other forms of interaction

Do not administer other non-steroidal anti-inflammatory drugs (even acetylsalicylic acid at a low dose), concurrently with or within 24 hours of administration of the veterinary medicinal product, as this may increase risk of toxicity, particularly gastrointestinal toxicity.
Simultaneous administration with corticosteroids must also be avoided as this may increase the toxicity of both veterinary medicinal products and increase the risk of gastrointestinal ulceration.
Flunixin may decrease the effect of some antihypertensive drugs, such as diuretics, ACE inhibitors (angiotensin converting enzyme inhibitors) and β-blockers, by inhibiting prostaglandin synthesis.
Avoid simultaneous administration of the veterinary medicinal product with potentially nephrotoxic drugs, in particular aminoglycosides. Flunixin can reduce the renal elimination of some drugs and increase their toxicity, such as for aminoglycosides.

3.9 Administration routes and dosage

For intramuscular and intravenous use in cattle.
For intramuscular use in pigs.
For intravenous use in horses.

Cattle:
2 mg of flunixin per kg bodyweight per day, corresponding to 2 ml of the veterinary medicinal product per 50 kg bodyweight, by intravenous or intramuscular injection for 1 to 3 consecutive days.
For intramuscular use, if dose volume exceeds 8 mL, it should be divided and injected into two or three sites. In case that more than three sites are necessary, the intravenous route should be used.

Pigs:
- Postpartum dysgalactia syndrome (Mastitis-Metritis-Agalactia):
2 mg of flunixin per kg bodyweight per day, corresponding to 2 ml of the veterinary medicinal product per 50 kg bodyweight, by intramuscular injection for 1 to 3 consecutive days.
- Reduction of fever in respiratory conditions:
2 mg of flunixin per kg bodyweight, corresponding to 2 ml of the veterinary medicinal product per 50 kg bodyweight, by intramuscular injection, once.
The injection volume should be limited to a maximum of 4 ml per injection site.

Horses:
- Treatment of inflammation and pain relief in musculoskeletal conditions:
1 mg of flunixin per kg bodyweight per day, corresponding to 1 ml of the veterinary medicinal product per 50 kg bodyweight, by intravenous injection for 1 to 5 consecutive days.
- Relief of pain associated with colic:
1 mg of flunixin per kg bodyweight, corresponding to 1 ml of the veterinary medicinal product per 50 kg bodyweight, by intravenous injection. Treatment may be repeated once or twice if colic recurs.

To ensure a correct dosage, body weight should be determined as accurately as possible.

The stopper may be safely punctured up to 25 times with a 18 G needle size and up to 100 times with a 21 G needle size. For multiple vial entry, an aspirating needle or multi-dose syringe is recommended to avoid excessive broaching of the stopper.

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

Overdose is associated with gastro-intestinal toxicity. Symptoms of ataxia and lack of coordination may also appear.
In horses, after doses upwards of 3 times the recommended dose (3 mg/kg bodyweight) administered intravenously, a transient increase in blood pressure may occur.
In cattle, administration of 3 times the recommended dose (6 mg/kg body weight) intravenously did not show adverse effects.
In pigs, with doses upwards of 2 mg/kg administered twice a day, painful reactions at the injection site and an increase in the leucocyte count have been reported.

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

Cattle:
- Meat and offal: 10 days (i.v. route)
  31 days (i.m. route)
- Milk: 24 hours (i.v. route)
  36 hours (i.m. route)

Pigs:
- Meat and offal: 20 days

Horses:
- Meat and offal: 10 days
- Milk: Not authorised for use in mares producing milk for human consumption.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QM01AG90

4.2 Pharmacodynamics

Flunixin is a nonsteroidal anti-inflammatory drug. Flunixin (as meglumine) acts as a reversible, non-selective inhibitor of cyclooxygenase (COX), an enzyme which converts arachidonic acid into unstable cyclic endoperoxides, which are in turn transformed into prostaglandins, prostacyclins and thromboxanes. Some of these prostanoids, such as prostaglandins, are involved in the pathophysiological mechanisms of inflammation, pain and fever. The inhibition of the synthesis of these compounds seems to be responsible for the therapeutic effects of flunixin meglumine.

Since prostaglandins are also involved in other physiological processes, COX inhibition is regarded as also responsible for certain adverse effects such as gastrointestinal lesions and kidney injury.
Prostaglandins are part of the complex processes involved in the development of endotoxic shock.

4.3 Pharmacokinetics

In cattle, after intramuscular administration of flunixin at a dose of 2 mg/kg, a peak concentration is observed approximately 30 minutes after injection.
After intravenous administration, rapid distribution is observed, followed by slow elimination (approximately 4 hours).
Plasma protein binding is high.

In pigs, after intramuscular administration of flunixin at a dose of 2 mg/kg, a peak concentration is observed approximately 30 minutes after injection.
After intravenous administration, rapid distribution is observed, followed by slow elimination (approximately 8 hours).
Plasma protein binding is high.

In horses, after intravenous administration of flunixin at a dose of 1 mg/kg, rapid distribution is observed and the elimination half-life is approximately 2 hours.
Flunixin is eliminated mainly in the urine in conjugated form.

Environmental properties
Flunixin is toxic to avian scavengers although foreseen low exposure leads to low risk.

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: 30 months
Shelf life after first opening the immediate packaging: 28 days

5.3 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.

5.4 Nature and composition of immediate packaging

Colourless type II glass vials closed with bromobutyl rubber stoppers and sealed with flip-off cap or an aluminium cap in a cardboard box.

Pack sizes:
Cardboard box with 1 vial of 50 ml
Cardboard box with 1 vial of 100 ml
Cardboard box with 1 vial of 250 ml

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

Industrial Veterinaria, S.A.

7. MARKETING AUTHORISATION NUMBER

Vm 36547/3001

8. DATE OF FIRST AUTHORISATION

01 August 2024

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

August 2024

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).

Gavin Hall
Approved: 15 October 2024