SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Emdofluxin 50 mg/mL solution for injection for cattle, pigs and horses

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One mL contains:

Active substance:
Flunixin 50.00 mg
(as 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	5.00 mg
Sodium formaldehyde sulfoxylate	2.50 mg
Disodium edetate	0.10 mg
Propylene glycol	
Hydrochloric acid, dilute (for pH adjustment)	
Sodium hydroxide (for pH adjustment)	
Water for injections	

Solution for injection
Colourless to yellow solution, clear and free from particles.

3. CLINICAL INFORMATION

3.1 Target species

Horses, cattle, pigs.

3.2 Indications for use for each target species

Horses: Alleviation of inflammation and pain associated with musculoskeletal disorders.
Alleviation of visceral pain associated with colic.
Cattle: Reduction of clinical signs during respiratory infections in association with an appropriate anti-infective treatment.

Pigs: Adjunctive therapy in the treatment of MMA (Mastitis-Metritis-Agalactia) syndrome in sows.
Reduction of fever associated with respiratory disorders in association with an appropriate anti-infective treatment.

3.3 Contraindications

Do not use in animals with liver, cardiac or renal disease.
Do not use in animals where there is the possibility of gastro-intestinal ulceration or bleeding.
Do not use the veterinary medicinal product where there are signs of blood dyscrasias or haemostasis alteration.
Do not use in cases of hypersensitivity to the active substance, to other NSAIDs or to any of the excipients.
Do not use the veterinary medicinal product in cattle within 48 hours before expected parturition in cows.
Do not use in pregnant mares.
Do not use in case of stomach cramps caused by ileus, associated with dehydration.
Do not use in animals that suffer chronic musculo-skeletal disorders.

3.4 Special warnings

The underlying cause of inflammation or colic should be determined and treated concurrently with an appropriate therapy.
NSAIDs can cause phagocytosis inhibition and, therefore, in the treatment of inflammatory states associated with bacterial infections, appropriate concurrent antimicrobial therapy should be established.

3.5 Special precautions for use

Special precautions for safe use in target species:
Avoid use in dehydrated, hypovolaemic or hypotensive animals except in the case of endotoxaemia or septic shock.
During treatment, water consumption and hydration status of the animal should be monitored, since in cases of dehydration the risk of kidney damage increases.
Intra-arterial injection must be avoided in cows and horses. Ataxia, incoordination, hyperventilation, excitability and muscles weakness could appear as clinical signs. These signs are transitory and disappear in few minutes without using antidote therapy.
Use in any animal less than 6 weeks of age (cattle and horses) or in aged animals may involve additional risks. If such use cannot be avoided, animals may require a reduced dosage and careful clinical management.
It is preferable that NSAIDs which inhibit prostaglandin synthesis are not administered to animals undergoing general anaesthesia until fully recovered.
The veterinary medicinal product must be injected slowly and at body temperature. Stop injection at the first signs of intolerance and treat shock if necessary.
In intramuscular administration in pigs, it should be avoided to deposit the drug in adipose tissue.
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 can provoke reactions in sensitised individuals. People with known hypersensitivity to non-steroidal anti-inflammatory drugs and/or to propylene glycol should avoid contact with the veterinary medicinal product. Adverse reactions can be serious.

The veterinary medicinal product can cause skin and eye irritation. Avoid contact with skin and eyes Wash hands after using the product. In case of accidental skin exposure, wash the affected area immediately with plenty of water. In case of accidental eye contact rinse immediately with plenty of water. If skin and /or eye irritation persists, seek medical advice immediately and show the package leaflet or the label to the physician.

Do not eat or drink while using the veterinary medicinal product to avoid accidental ingestion. In case of accidental self-injection acute pain and inflammation may appear. Immediately clean and disinfect the wound, seek medical advice 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

Horses, cattle, pigs

Undetermined frequency (cannot be estimated from the available data):	Haemorrhages[1], gastro-intestinal lesions (irritations, gastric ulcers)[1], vomiting[1], renal lesions[1] Slow down parturition[2], perinatal mortality (increase)[2] Retained placenta[3] Blood in faeces[7], diarrhoea[7]
Rare (1 to 10 animals / 10,000 animals treated):	Renal disorder[4], liver disorder[4] Shock[5] Anaphylactic-type reaction [6]
Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Injection site reactions[8]

[1] particularly in dehydrated or hypovolemic animals

[2] due to a tocolytic effect induced by the inhibition of the prostaglandin synthesis, responsible for the initiation of the parturition.

[3] if the product is used in the post-parturition period

[4] as with other NSAIDs

[5] Potentially lethal shock after intravenous administration, due to the presence of propylene glycol. Stop the administration and treat the shock symptoms in case of signs of general intolerance, if necessary.

[6] **Horses and Cattle only**: lethal outcome, collapse, mainly during rapid intravenous administration

[7] **Horses only:** after intravenous administration

[8] **Cattle only:** after intramuscular administration

If adverse reactions appear, stop the 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 shown evidence of foetotoxicity after oral (rabbit and rat) and intramuscular (rat) administration of flunixin at maternotoxic doses and also a lengthening of the duration of gestation (rat).

Pregnancy, lactation and fertility:

The safety of flunixin has not been established in pregnant mares and in breeding stallions and bulls. Do not use the veterinary medicinal product in these animals.
The safety of flunixin has been established in pregnant cows and sows and in breeding boars. The veterinary medicinal product can be used in these animals except for animals within 48 hours of parturition (see section 3.3 and 3.6).
In the 36 hours following parturition, the product should only be used according to the benefit/risk assessment by the responsible veterinarian and treated animals should be monitored for retention of the placenta.

3.8 Interaction with other medicinal products and other forms of interaction

Pre-treatment with other anti-inflammatory substances may end up in additional or increase of adverse effects. Do not administer other NSAIDs concurrently or within at least 24 hours of each other. The pharmacokinetic properties of the other product should be taken into consideration before commencing treatment with this veterinary medicinal product.

The concurrent administration with corticoids may increase the toxicity of both products and increase the risk of gastrointestinal ulceration.

Flunixin may reduce the effect of some anti-hypertensive medicinal products, such as diuretics and beta blockers, by inhibition of prostaglandin synthesis.

Avoid concurrent administration of potentially nephrotoxic veterinary medicinal products, particularly aminoglycosides. Flunixin may reduce the renal excretion of certain veterinary medicinal products and increase their toxicity, such as for aminoglycosides.

3.9 Administration routes and dosage

Horses: Intravenous use.
Cattle: Intravenous or intramuscular use.
Pigs: Intramuscular use.

Horses:
- Alleviation of inflammation and pain associated with musculoskeletal disorders: 1 mg flunixin per kg body weight per day equivalent to 1 mL of the veterinary medicinal product per 50 kg body weight, IV, for 1-5 consecutive days.
- Alleviation of visceral pain associated with colic: 1 mg flunixin per kg body weight equivalent to 1 mL of the veterinary medicinal product per 50 kg body weight, IV. The treatment may be repeated once or twice if the symptoms reoccur.

Cattle:
- 2 mg flunixin per kg body weight per day equivalent to 2 mL of the veterinary medicinal product per 50 kg body weight, IV or IM, for 1-3 consecutive days. The maximal volume to be administered per injection site is 20 mL.

Pigs:
- Adjunctive therapy in the treatment of MMA syndrome: 2 mg flunixin per kg body weight per day equivalent to 2 mL of the veterinary medicinal product per 50 kg body weight, IM, for 1-3 consecutive days. If the injection volume exceeds 5 mL, this volume should be divided into two doses, administered at two different injection sites.
- Reduction of fever associated with respiratory disorders: 2 mg flunixin per kg body weight equivalent to 2 mL of the veterinary medicinal product per 50 kg body weight, IM, once. If the injection volume exceeds 5 mL, this volume should be divided into two doses, administered at two different injection sites.

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

The vial should not be broached more than 25 times. Therefore the user should select the most appropriate vial size according to the target species to be treated. When treating several animals in one run, use a draw-off needle that has been placed in the vial stopper to avoid excess broaching of the stopper. The draw-off needle should be removed after treatment.

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

Overdose is associated with gastro-intestinal toxicity. Ataxia and incoordination may also occur.
In horses, after intravenous injection of three times the recommended dose, a transient increase in blood pressure may be observed.
In cattle, intravenous administration of three times the recommended dose did not lead to any adverse reaction.
In pigs, at 2 mg/kg twice daily, painful reaction at the injection site and a rise in leucocyte count has 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

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

Cattle:
- Following intravenous administration:
  - Meat and offal: 10 days
  - Milk: 24 hours
- Following intramuscular administration
  - Meat and offal: 31 days
  - Milk: 36 hours

Pigs:
- Meat and offal: 20 days

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QM01AG90

4.2 Pharmacodynamics

Flunixin (as meglumin) acts as a reversible non-selective inhibitor of the cyclooxygenase (COX) enzyme, which converts arachidonic acid into instable cyclic endoperoxydases and then into prostaglandins, prostacyclins and thromboxanes. Some of those prostanoids, such as the prostaglandins, are implicated in physiopathologic mechanisms of inflammation, pain and fever. Inhibition of the synthesis of those compounds is responsible for the therapeutic effects of flunixin meglumin.

Since prostaglandins are also implicated in other physiologic processes, gastro-intestinal and renal lesions could also occur due to inhibition of COX. Prostaglandins take also part in complex processes which are implicated in the development of endotoxemic shock.

4.3 Pharmacokinetics

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

In cattle, a maximal concentration is observed 30 minutes after intramuscular administration of 2 mg/kg flunixin. After intravenous administration, a rapid distribution is observed followed by a slow elimination (approximately 4 hours). There is a high level of plasma protein binding.

In pigs a maximal concentration is observed 30 minutes after intramuscular administration of 2 mg/kg flunixin. After intravenous administration, a rapid distribution is observed followed by a slow elimination. There is a high level of plasma protein binding.

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: 3 years.
Shelf life after first opening the immediate packaging: 28 days

5.3 Special precautions for storage

Keep the vial in the outer carton in order to protect from light.

5.4 Nature and composition of immediate packaging

50, 100 or 250 mL colourless type I glass vials closed with bromobutyl rubber stoppers and sealed with an aluminium cap in a cardboard box.

Pack sizes:
Cardboard box containing one vial of 50 mL
Cardboard box containing one vial of 100 mL
Cardboard box containing one 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

Emdoka

7. MARKETING AUTHORISATION NUMBER

Vm 34534/3000

8. DATE OF FIRST AUTHORISATION

11 August 2020

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

September 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*)

Approved 21 February 2024