Summary of Product Characteristics

1 NAME OF THE VETERINARY MEDICINAL PRODUCT

Glucadex 2 mg/ml solution for injection for horses, cattle, goats, pigs, dogs and cats

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

1 ml contains:

Active substance:

Dexamethasone	2.0 mg
(as dexamethasone sodium phosphate)	2.63 mg

Excipients:

Benzyl alcohol (E1519)	15.6 mg

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Solution for injection.
Clear, colourless aqueous solution.

4 CLINICAL PARTICULARS

4.1 Target Species

Horses, cattle, goats, pigs, dogs and cats

4.2 Indications for use, specifying the target species

Horses, cattle, goats, pigs, dogs and cats:
Treatment of inflammation and allergic reactions.

Horses:
Treatment of arthritis, bursitis or tenosynovitis.

Cattle:
Treatment of primary ketosis (Acetonemia).
Induction of parturition.

Goats:
Treatment of primary ketosis (Acetonemia).

4.3 Contraindications

Except in emergency situations, do not use in animals suffering from diabetes mellitus, renal insufficiency, cardiac insufficiency, hyperadrenocorticism or osteoporosis.
Do not use in viral infections during the viraemic stage or in cases of systemic mycotic infections.
Do not use in animals suffering from gastrointestinal or corneal ulcers, or demodicosis.
Do not administer intra-articularly where there is evidence of fractures, bacterial joint infections and aseptic bone necrosis.
Do not use in cases of hypersensitivity to the active substance, to corticosteroids and to any other ingredient of the product.
See also section 4.7.

4.4 Special warnings for each target species

None.

4.5 Special precautions for use

Special precautions for use in animals
Response to long-term therapy should be monitored at regular intervals by a veterinary surgeon. Use of corticosteroids in horses has been reported to induce laminitis. Therefore, horses treated with such preparations should be monitored frequently during the treatment period.
Because of the pharmacological properties of the active ingredient, special care should be taken when the product is used in animals with a weakened immune system.
Except in cases of ketosis and induction of parturition, the purpose of corticosteroid administration is to induce an improvement in clinical signs rather than a cure. The underlying disease should be further investigated.
Following intra-articular administration, use of the joint should be minimized for one month and surgery on the joint should not be performed within eight weeks of use of this route of administration.
Care should be taken not to overdose Channel Island breeds.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
This product contains dexamethasone which can cause allergic reactions in some people. Care should be taken to avoid accidental self-injection. In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician.
People with known hypersensitivity to dexamethasone should avoid contact with the veterinary medicinal product.
Dexamethasone may affect fertility or the unborn child. To avoid the risk from accidental self-injection, pregnant women should not handle this product.
This product is a skin and eye irritant. Avoid contact with skin and eyes. In the event of accidental eye or skin contact, wash/irrigate the area with clean running water. Seek medical attention if irritation persists. Wash hands after use.

4.6 Adverse reactions (frequency and seriousness)

Anti-inflammatory corticosteroids, such as dexamethasone, are known to exert a wide range of side effects. Whilst single high doses are generally well tolerated, they may induce severe side-effects in long term use and when esters possessing a long duration of action are administered. Dosage in medium to long term use should therefore generally be kept to the minimum necessary to control symptoms.

Steroids themselves, during treatment, may cause iatrogenic hyperadrenocorticism (Cushing's disease) involving significant alteration of fat, carbohydrate, protein and mineral metabolism, e.g. redistribution of body fat, muscle weakness and wastage and osteoporosis may result.

During therapy effective doses suppress the hypothalamo-pituitary-adrenal axis. Following cessation of treatment, symptoms of adrenal insufficiency extending to adrenocortical atrophy can arise and this may render the animal unable to deal adequately with stressful situations. Consideration should therefore be given to means of minimising problems of adrenal insufficiency following the withdrawal of treatment, e.g. dosing to coincide with the time of the endogenous cortisol peak (i.e. in the morning with regard to dogs and the evening regarding cats) and a gradual reduction of dosage.

Systemically administered corticosteroids may cause polyuria, polydipsia and polyphagia, particularly during the early stages of therapy. Some corticosteroids may cause sodium and water retention and hypokalaemia upon long term use. Systemic corticosteroids have caused deposition of calcium in the skin (calcinosis cutis) and may cause atrophy of the skin.

Corticosteroids may delay wound healing and the immunosuppressant actions may weaken resistance to or exacerbate existing infections. In the presence of bacterial infection, antibacterial drug cover is usually required when steroids are used. In the presence of viral infections, steroids may worsen or hasten the progress of the disease.

Gastro-intestinal ulceration has been reported in animals treated with corticosteroids and gastrointestinal ulceration may be exacerbated by steroids in patients given non-steroidal anti-inflammatory drugs (NSAIDs) and in animals with spinal cord trauma. Steroids may cause enlargement of the liver (hepatomegaly) with increased serum hepatic enzymes.

Steroids may be related to behavioral changes in dogs and cats (occasional depression in cats and dogs, aggressiveness in dogs).

Corticosteroid use may induce changes in blood biochemical and haematological parameters. Transient hyperglycaemia can occur.

The induction of parturition with corticosteroids may be associated with reduced viability of calves, an increased incidence of retained placentae and possible subsequent metritis and/or subfertility in cattle.

Corticosteroid use may increase the risk of acute pancreatitis. Other possible adverse reactions associated with corticosteroid use include laminitis and reduction in milk yield.

In very rare cases, hypersensitivity reactions may occur.

The frequency of adverse reactions is defined using the following convention:
- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports).

4.7 Use during pregnancy, lactation or lay

Apart from the use of the veterinary medicinal product to induce parturition in cattle, corticosteroids are not recommended for use in pregnant animals. Administration in early pregnancy is known to have caused fetal abnormalities in laboratory animals. Administration in late pregnancy may cause early parturition or abortion.
Use of corticosteroids in lactating cows and goats may cause a temporary reduction in milk yield.
In suckling animals, the veterinary medicinal product should be used only according to the benefit-risk assessment by the responsible veterinarian.
See section 4.6.

4.8 Interaction with other medicinal products and other forms of interactions

Concurrent use with non-steroidal anti-inflammatory drugs (NSAIDs) may exacerbate gastrointestinal tract ulceration.
Because corticosteroids can reduce the immune response to vaccination, dexamethasone should not be used in combination with vaccines or within two weeks after vaccination. Administration of dexamethasone may induce hypokalaemia and hence increase the risk of toxicity from cardiac glycosides. The risk of hypokalaemia may be increased if dexamethasone is administered together with potassium depleting diuretics.
Concurrent use with anticholinesterase may lead to increased muscle weakness in patients with myasthenia gravis.
Glucocorticoids antagonise the effects of insulin.
Concurrent use with phenobarbital, phenytoin and rifampicin can reduce the effects of dexamethasone.

4.9 Amounts to be administered and administration route

Horses
Intravenous, intramuscular, intraarticular and peri-articular use.

Dogs and cats
Intravenous, intramuscular and subcutaneous use.

Cattle, goats and pigs
Intravenous and intramuscular use.

For the treatment of inflammatory or allergic conditions the following average doses are advised. However the actual dose used should be determined by the severity of the signs and the length of time for which they have been present.

Species	**Dosage**
Horses, cattle, goats, pigs	0.06 mg of dexamethasone/kg bw (1.5 ml of product/50 kg bw)
Dog, cat	0.1 mg of dexamethasone/ kg bw (0.5 ml of product/10 kg bw)

For the treatment of primary ketosis a dose of 0.02-0.04 mg of dexamethasone/kg bw (cattle: 5-10 ml of product per 500 kg bw; goats: 0.65-1.3 ml of product per 65 kg bw) given by single intramuscular injection is advocated dependent on the size of

the animal and the duration of the signs. Higher doses (i.e. 0.04 mg/kg) will be required if the signs have been present for some time or if relapsed animals are being treated.

For the induction of parturition in cattle - to avoid foetal oversize and mammary oedema. A single intramuscular injection of 0.04 mg of dexamethasone/kg bw (corresponding to 10 ml of product for a cow weighing 500kg) after day 260 of pregnancy. Parturition will normally occur within 48-72 hours.
For the treatment of arthritis, bursitis or tenosynovitis by intra-articular or peri-articular injection in the horse.
Dose 1 - 5 ml of product per treatment

These quantities are not specific and are quoted purely as a guide. Injections into joint spaces or bursae should be preceded by the removal of an equivalent volume of synovial fluid. Strict asepsis is essential.

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

An overdose can induce drowsiness and lethargy in horses.
See section 4.6.

4.11 Withdrawal period(s)

Cattle and goats:
Meat and offal: 8 days
Milk: 72 hours

Pigs:
Meat and offal: 2 days following intramuscular administration
Meat and offal: 6 days following intravenous administration

Horses:
Meat and offal: 8 days
Not authorized for use in horses producing milk for human consumption.

5 PHARMACOLOGICAL or IMMUNOLOGICAL PROPERTIES

Pharmacotherapeutic group: Corticosteroids for systemic use, dexamethasone.
ATC vet code: QH02AB02.

5.1 Pharmacodynamic properties

Dexamethasone is a potent synthetic glucocorticoid with low mineralocorticoid activity. Dexamethasone has ten to twenty times the anti-inflammatory activity of prednisolone at an equivalent molar dose. Corticosteroids may decrease the immune response. Indeed, they inhibit capillary dilatation, leukocyte migration and phagocytosis. Glucocorticoids have an effect on metabolism by increasing gluconeogenesis. Administration of dexamethasone mimics the effects of cortisol and therefore produces a signal that initiates the induction of parturition in ruminants if the fetus is alive.

5.2 Pharmacokinetic particulars

After administration of the product intramuscularly, dexamethasone sodium phosphate is rapidly absorbed and hydrolysed to dexamethasone (base) giving a rapid and short-acting response (approximately 48 hours). T_{max} in cattle, goats, horses, pigs, dogs and cats is reached within 30 minutes after intramuscular administration. T½ (half-life time) varies between 5 and 20 hours depending on the species. The bioavailability after intramuscular administration is approximately 100%.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Benzyl alcohol (E1519)
Sodium chloride
Sodium citrate dihydrate
Citric acid (for pH adjustment)

Sodium hydroxide (for pH adjustment)
Water for injections

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

6.4 Special precautions for storage

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

6.5 Nature and composition of immediate packaging

50 ml and 100 ml clear type I glass vials closed with a coated bromobutyl rubber stopper and aluminium cap in a carton 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

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

Kepro BV
Maagdenburgstraat 17
Deventer
7421 ZA
Netherlands

8 MARKETING AUTHORISATION NUMBER(S)

VPA22633/001/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 14th February 2020

10 DATE OF REVISION OF THE TEXT