1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Norocarp 5.0% w/v Large Animal Solution for Injection

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active Substance:

Carprofen	5.0% w/v

Excipients:

Ethanol	10.0% v/v (as preservative)
Sodium Formaldehyde Sulphoxylate	0.20% w/v (as antioxidant)

For a full list of excipients, see section 6.1

3. PHARMACEUTICAL FORM

Solution for Injection.
A clear colourless to pale yellow solution.

4. CLINICAL PARTICULARS

4.1 Target species

Young cattle (under 12 months of age)

4.2 Indications for use, specifying the target species

In young cattle (under 12 months old) the product is indicated as adjunctive therapy for the control of acute inflammation associated with respiratory disease. The cause of the condition should be determined and treated with an appropriate antimicrobial.

4.3 Contraindications

Do not exceed the stated dose or the duration of treatment.
Do not administer other NSAIDs concurrently or within 24 hours of each other. Some NSAIDs may be highly bound to plasma proteins and compete with other highly bound drugs, which can lead to toxic effects.
Do not use in animals suffering from cardiac, hepatic or renal disease, where there is a possibility of gastrointestinal ulceration or bleeding, or where there is evidence of a blood dyscrasia or hypersensitivity to the product.

4.4 Special Warnings for each target species

Do not use in animals suffering from cardiac, hepatic or renal disease, where there is a possibility of gastrointestinal ulceration or bleeding, or hypersensitivity to the product. As with other NSAIDs there is a risk of rare renal or idiosyncratic hepatic adverse events.

Use in animals less than 6 weeks of age, or in aged animals, may involve additional risk. If such use cannot be avoided, animals may require a reduced dosage and careful clinical management.

Avoid use in any dehydrated, hypovolaemic or hypotensive animal, as there is a potential risk of increased renal toxicity.

4.5 Special precautions for use

Special precautions for use in animals

Use in any animal less than 6 weeks of age, or in aged animals, may involve additional risk. If such use cannot be avoided, animals may require a reduced dosage and careful clinical management.

Avoid use in any dehydrated, hypovolaemic or hypotensive animal, as there is a potential risk of increased renal toxicity.

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

Avoid skin contact with the product. Wash off any splashes immediately. Take care to avoid accidental self-injection.
Wash hands after use.

4.6 Adverse reactions (frequency and seriousness)

Typical undesirable effects associated with NSAID administration such as faecal occult blood, loss of appetite and lethargy, have been reported. These adverse reactions occur generally within the first week and in most cases are transient and disappear following termination of the treatment, but in rare cases may be serious or fatal.

If adverse reactions occur, use of the product should be stopped and the advice of a veterinarian should be sought.

Transient injection site reactions may be observed in young cattle after subcutaneous administration. These resolve within 24 hours.

4.7 Use during pregnancy, lactation or lay

In the absence of any specific studies in pregnant target animals such use is not indicated.

Not for use in cattle producing milk for human consumption.

4.8 Interaction with other medicinal products and other forms of interaction

Do not administer NSAIDs or glucocorticoids concurrently or within 24 hours of each other. Some NSAIDs may be highly bound to plasma proteins and compete with other highly bound drugs, which can lead to toxic effects.

Gastrointestinal tract ulceration may be exacerbated by corticosteroids in patients given NSAIDs.

4.9 Amounts to be administered and administration route

In young cattle the recommended dosage is 1.4 mg Carprofen per kilogram (1ml/35kg) bodyweight once, administered by subcutaneous injection.

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

Carprofen is well tolerated at doses up to 3 times the recommended dose for cattle. There is no specific antidote for Carprofen overdosage but general supportive therapy as applied to clinical overdosage with NSAIDs should be applied.

4.11 Withdrawal period

Cattle meat and offal: 10 days.
Do not use in cows producing milk for human consumption.

5. PHARMACOLOGICAL PROPERTIES

ATCvet Code: Anti-inflammatory products
QM01AE91

Carprofen (CPF), (±)-6-chloro-α-methylcarbazole-2-acetic acid, is a non-steroidal anti-inflammatory drug (NSAID) with analgesic and anti-pyretic properties. It is a derivative of phenylpropionic acid and a member of the arylpropionic acid class of NSAIDs. As a representative of the 2-arylpropionic family, it contains a chiral center at C_2 of the propionic moiety and therefore, exists in 2 sterioisomeric forms, the (+)-S and (-)-R enantiomers.

5.1 Pharmacodynamic properties

The mechanism of action of Carprofen has not been fully elucidated, however *in vitro* studies have shown it to be a cyclo-oxygenase inhibitor. However, the inhibition of prostaglandin synthesis by carprofen is slight in relation to its anti-inflammatory and analgesic potency. The precise mode of action is unclear.

Studies have shown that carprofen has potent antipyretic activity and significantly reduces the inflammatory response in lung tissue in cases of acute, pyrexic infectious disease in cattle.

5.2 Pharmacokinetic properties

As a representative of the 2-arylpropionic family, carprofen contains a chiral center at C_2 of the propionic moiety and therefore, exists in 2 stereoisomeric forms, the (+)-S and (-)-R enantiomers.

The drug is available as a racemic mixture (i.e. equal quantities of both the R- and S+ enantiomers). All 2-arylpropionic acid NSAIDs (except Naproxen) are administered as a racemic mixture of 2 optical isomers with different anti-inflammatory activity as well as inter-species differences across the group.

For a racemic mixture, results have shown the predominance of R(-) over the S(+) enantiomer in cattle and horses, with a slow clearance, long half-life and low distribution volume of both enantiomers. In a pharmacokinetic study using Norocarp 5.0% w/v Large Animal Solution for Injection in cattle, following a single subcutaneous dose of 1.4 mg carprofen per kilogram bodyweight the maximum plasma concentration (C_{max}) of 10.4 µg/ml was reached after (T_{max}) 7.2 hours. Carprofen is eliminated primarily by metabolism. Carprofen is primarily excreted in the faeces, indicating that the biliary secretion plays an important role.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Ethanol (Absolute)
Sodium Formaldehyde Sulphoxylate
Macrogol 600
Macrogol 4000
L-Arginine
Water for Injection

6.2 Incompatibilities

None known

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 2 years.
Shelf life after first opening the immediate packaging: 28 days.

6.4 Special precautions for storage

Do not store above 25°C.
Protect from light.
Following the withdrawal of the first dose, use the remainder of the product within 28 days.

6.5 Nature and composition of immediate packaging

Available in 50ml multidose amber glass (grade I), sealed with 20mm bromobutyl bungs and 20mm aluminium seals.

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

Any unused product or waste material should be disposed of in accordance with national requirements.

7. MARKETING AUTHORISATION HOLDER

Norbrook Laboratories Limited
Station Works
Newry
Co. Down, BT35 6JP
Northern Ireland

8. MARKETING AUTHORISATION NUMBER

Vm 02000/4246

9. DATE OF RENEWAL OF THE AUTHORISATION

30 January 2011

10. DATE OF REVISION OF THE TEXT

November 2010