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*This product is conditionally licensed while additional efficacy and potency date are being developed.
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**AMIGLYDE-V**® Intrauterine Solution
*(amikacin sulfate)*

**USES:**
Treatment of uterine infections (endometritis, metritis and pyometra) caused by *Escherichia coli*, *Pseudomonas* spp. and *Klebsiella* spp.

**SUPPLIED:**
• 48-mL vial

**KEY FACTS:**
• Amikacin has been shown to be effective against many aminoglycoside-resistant strains due to its ability to resist degradation by certain aminoglycoside inactivating enzymes.

**IMPORTANT SAFETY INFORMATION:**
Concurrent use of other aminoglycosides should be avoided because of the potential for additive effects. Do not use AMIGLYDE-V in horses intended for human consumption. See full Prescribing Information, attached.

**EXCEDE**® Sterile Suspension
*(ceftiofur crystalline free acid)*

**USES:**
A sustained-release antibiotic used in the treatment of lower respiratory tract infections in horses caused by susceptible strains of *Streptococcus equi* subspecies *zooepidemicus* (S. *zooepidemicus*), the most common bacterial pathogen isolated from equine respiratory infections.

**SUPPLIED:**
• 100-mL vial
• 250-mL vial

**KEY FACTS:**
• First and only FDA-approved antibiotic for horses that offers a full 10-day course of therapy in just two doses.
• By providing 10 days of therapy in just two doses administered four days apart, versus 10 daily doses of a comparative antibiotic, veterinarians can optimize compliance.
• Fewer treatments means less potential for missed doses, making treating equine respiratory infections less stressful for the horse owner and more convenient for the veterinarian and horse owner.
• Dosage of two intramuscular injections, 96 hours apart, at a dosage of 1.5 mL/100 lb. body weight provides 10 days of therapy.
• Recommend ≤10 mL per injection site.
• Use of a 16 gauge 1½” needle facilitates ease of injection.
• Contents should be used within 12 weeks after the first dose is removed.

**IMPORTANT SAFETY INFORMATION:**
People with known hypersensitivity to penicillin or cephalosporins should avoid exposure to EXCEDE. EXCEDE is contraindicated in animals with known allergy to ceftiofur or to the β-lactam group (penicillin and cephalosporins) of antimicrobials. Do not use in horses intended for human consumption. The administration of antimicrobials in horses under conditions of stress may be associated with diarrhea, which may require appropriate veterinary therapy. See full Prescribing Information, attached.
**NAXCEL® Sterile Powder**
*(ceftiofur sodium)*

**USES:**
Treatment of respiratory infections associated with *Streptococcus equi* ssp. *zooepidemicus*.

**SUPPLIED:**
- 1-gram vial
- 4-gram vial

**KEY FACTS:**
- Administer by intramuscular injection at the dosage of 1 to 2 mg ceftiofur per pound of body weight, with a maximum of 10 mL per injection site.
- Treatment should be repeated at 24-hour intervals, and continued for 48 hours after clinical signs have disappeared but should not exceed 10 days.

**IMPORTANT SAFETY INFORMATION:**
People with known hypersensitivity to penicillin or cephalosporins should avoid exposure to NAXCEL. Do not use in horses intended for human consumption. Do not use in animals found to be hypersensitive to the product. The administration of antimicrobials to horses under conditions of stress may be associated with acute diarrhea that could be fatal. See full Prescribing Information, attached.

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**Sterile Water**

**USES:**
For use in diluting NAXCEL Sterile Powder.

**SUPPLIED:**
- 80 mL (for 4 g of NAXCEL)
CARBOCAINE®-V Sterile Aqueous Solution
(mepivacaine hydrochloride)

USES:
Recommended for infiltration, nerve block, intra-articular and epidural anesthesia. It has also been found useful for topical anesthesia of the laryngeal mucosa prior to ventriculectomy.

SUPPLIED:
• 50-mL multiple-dose vial

KEY FACTS:
• Dosage varies considerably depending on anesthetic technique, body area to be desensitized and the surgical procedure.
• The drug produces complete and effective anesthesia at dosages that are no more than half those needed when procaine is used.
• For nerve block, 3 to 15 mL is recommended in the diagnosis of lameness, firing, pain relief in osteoarthritis, and navicular disease.
• For epidural anesthesia 5 to 20 mL is recommended.
• For intra-articular anesthesia, 10 to 15 mL is recommended in the diagnosis of bone and bog spavin, removal of fractural chips, and arthritis.
• For topical application, a total of 25 to 40 mL applied by spray (3 mL/application) is usually adequate.

IMPORTANT SAFETY INFORMATION:
Do not use CARBOCAINE-V in horses intended for human consumption. Avoid intravenous administration. See full Prescribing Information, attached.

DEPO-MEDROL® Sterile Aqueous Suspension
(methylprednisolone acetate)

USES:
For the treatment of pain and lameness associated with acute localized arthritic conditions and generalized arthritic conditions.

SUPPLIED:
• 20 mg/mL (20-mL vial)
• 40 mg/mL (5-mL vial)

KEY FACTS:
• Produces a more prolonged anti-inflammatory effect than equimolar hydrocortisone acetate.
• Provides relief from pain within 12 to 24 hours of intrasynovial injection.
• Duration of pain relief averages three to four weeks, in some cases longer.
• The usual intramuscular dose for horses is 200 mg, repeated as necessary.
• The usual intrasynovial dose for horses is between 40 mg and 240 mg with a total body target dose of 100 mg for performance horses.

IMPORTANT SAFETY INFORMATION:
Do not use DEPO-MEDROL in animals with tuberculosis, peptic ulcer and Cushing’s syndrome. Use with extreme caution in pregnant animals. Watch for evidence of concurrent infection. See full Prescribing Information, attached.
DORMOSEDAN® Sterile Solution
(detomidine hydrochloride)

USES:
Long-lasting sedative for standing procedures such as minor surgeries, diagnostic procedures, wound treatment, transportation, management of colic, general examinations, etc.

SUPPLIED:
• 5 mL
• 20 mL

KEY FACTS:
• Effective standing sedative and analgesic in a single, non-narcotic dose.
• DORMOSEDAN has a graded dose response relationship; higher dosing increases duration of sedation and analgesic effects, but does not increase the depth of sedation.
• Can be administered intravenously (IV) or intramuscularly (IM).
• Predictable and effective sedation and analgesia due to high selectivity for alpha 2 receptors reducing the need to combine multiple sedatives for effect.
• Additional dosing of DORMOSEDAN prolongs, not deepens, sedation.
• Offers a wide margin of safety.
• Proper label use is proven to reduce the cost of re-sedation, compared with other sedation processes.

IMPORTANT SAFETY INFORMATION:
Do not use DORMOSEDAN Sterile Solution in horses with pre-existing atrioventricular (AV) or sinoatrial (SA) block, with severe coronary insufficiency, cerebrovascular disease, respiratory disease, or chronic renal failure. Do not use in anesthetized or sedated horses, or in conditions of shock, severe debilitation or stress due to extreme heat, cold, fatigue or high altitude. Do not use in horses intended for human consumption. Handle dosing syringes with caution to avoid direct exposure to skin, eyes or mouth. See full Prescribing Information, attached.

DORMOSEDAN GEL®
(detomidine hydrochloride)

USES:
A safe and effective mild standing sedative for use in a wide variety of nonpainful horse care procedures, including shoeing or trimming, clipping, pulling a mane, sheath cleaning or bandaging.

SUPPLIED:
• Single-dose syringe

KEY FACTS:
• Convenient oral gel formulation.
• Prescribed by the veterinarian, administered by the horse owner.
• FDA approved for mild sedation and restraint of horses at least one year of age.
• Administered sublingually, under the tongue.
• The only standing sedative of its kind.
• The duration and level of sedation are dose dependent. At the recommended 40 mcg/kg dose, the onset of sedation was observed at approximately 40 minutes, with a duration of sedation lasting between 90 to 180 minutes.

IMPORTANT SAFETY INFORMATION:
Do not use DORMOSEDAN GEL in horses with pre-existing atrioventricular (AV) or sinoatrial (SA) block, with severe coronary insufficiency, cerebrovascular disease, respiratory disease, or chronic renal failure. Do not use in anesthetized or sedated horses, or in conditions of shock, severe debilitation or stress due to extreme heat, cold, fatigue or high altitude. Do not use in horses intended for human consumption. Handle dosing syringes with caution to avoid direct exposure to skin, eyes or mouth. See full Prescribing Information, attached.
KETOFEN® Sterile Solution
(ketoprofen)

USES:
Recommended for the alleviation of inflammation and pain associated with musculoskeletal disorders in horses.

SUPPLIED:
• 50 mL
• 100 mL

KEY FACTS:
• Non-narcotic, nonsteroidal anti-inflammatory agent with analgesic and antipyretic properties. NSAID of the propionic acid class that includes ibuprofen, naproxen and fenoprofen.
• The recommended dosage is 1 mg/lb. (1 mL/100 lbs.) of body weight once daily. Treatment is administered by intravenous injection and may be repeated for up to five days. Onset of activity is within two hours with peak response by 12 hours.

IMPORTANT SAFETY INFORMATION:
KETOFEN should not be used in breeding horses. Do not use in horses intended for human consumption. See full Prescribing Information, attached.

TORBUGESIC®
(butorphanol tartrate)

USES:
For the relief of pain associated with colic in adult horses and yearlings. Clinical studies have shown that TORBUGESIC alleviates abdominal pain associated with torsion, impaction, intussusception, spasmodic and tympanic colic and postpartum pain.

SUPPLIED:
• 50 mL

KEY FACTS:
• TORBUGESIC is a totally synthetic, centrally acting, narcotic agonist-antagonist analgesic with potent antitussive activity. It is a member of the phenanthrene series.
• The recommended dosage in the horse is 0.1 mg of butorphanol per kilogram of body weight (0.05 mg/lb.) by intravenous injection. This is equivalent to 5 mL of TORBUGESIC for each 1,000 pounds of body weight. The dose may be repeated within three to four hours but treatment should not exceed 48 hours.
• Pre-clinical model studies and clinical field trials in horses demonstrate that the analgesic effects of TORBUGESIC are seen within 15 minutes following injection and persist for about four hours.

IMPORTANT SAFETY INFORMATION:
Use TORBUGESIC with caution with other sedative or analgesic drugs as these are likely to produce additive effects. Do not use in breeding horses, weanlings, or foals. Do not use in horses intended for human consumption. See full Prescribing Information, attached.
ANTHELCO® EQ Paste
(oxibendazole)

USES:
Broad-spectrum equine dewormer containing the active ingredient oxibendazole.

SUPPLIED:
• 24-gram syringe

KEY FACTS:
• Approved for the removal and control of large strongyles (Strongylus edentatus, S. equinus, S. vulgaris); small strongyles (species of the genera Cylicostephanus, Cylicocyclus, Cyathostomum, Triodontophorus, Cylicodontophorus, and Gyalocephalus); large roundworms (Parascaris equorum); pinworms (Oxyuris equi), and threadworms (Strongyloides westeri)
• One syringe doses up to 1,200 pounds of body weight.
• Shows efficacy against benzimidazole-resistant strongyles and has a known wide margin of safety.
**QUEST® Gel**
*(moxidectin)*

**USES:**
Treats and controls encysted small strongyle larvae, bots and roundworms with a single dose.

**SUPPLIED:**
- 11.3-gram syringe

**KEY FACTS:**
- QUEST treats and controls encysted small strongyle larvae, the No. 1 parasite of concern in adult horses according to the American Association of Equine Practitioners (AAEP).6
- In a study, QUEST was shown to reduce fecal egg counts by 99.9% in a single dose, while a five-day double-dose regimen of fenbendazole was only 42% effective.7
- QUEST and QUEST PLUS are the only products approved by the Food and Drug Administration to suppress the production of small strongyle eggs. A study showed egg suppression persisted for 90 days.7
- QUEST and QUEST PLUS are the only products approved to treat encysted small strongyles in breeding mares and stallions.

Do not use QUEST Gel or QUEST PLUS Gel in foals less than 6 months of age or in sick, debilitated and underweight horses. Do not use in other animal species, as severe adverse reactions, including fatalities in dogs, may result.

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**QUEST® PLUS Gel**
*(moxidectin/praziquantel)*

**USES:**
Offers the same effectiveness and duration as QUEST, but is also effective against tapeworms to help meet seasonal deworming needs.

**SUPPLIED:**
- 11.3-gram syringe

**KEY FACTS:**
- QUEST PLUS is the only product approved by the Food and Drug Administration that kills encysted small strongyles, bots, roundworms and tapeworms with a single dose.
- Late fall or early winter, after tapeworm transmission ends due to cold weather, is the ideal time for treatment against tapeworms, bots and larval stages of small strongyles according to the AAEP.9
- Contains an additional active ingredient — praziquantel — to specifically target tapeworms.
STRONGID® Paste
(*pyrantel pamoate*)

**USES:**
Safely and effectively removes and controls various internal parasites in horses and ponies.

**SUPPLIED:**
- 11.6-gram syringe

**KEY FACTS:**
- Effective against mature infections of ascarids, large strongyles, small strongyles and pinworms.
- Demonstrated effective against benzimidazole-resistant strongyles.
- Safe for use in horses and ponies, including breeding, pregnant and lactating mares and young foals.
- Active ingredient, pyrantel pamoate, is from the chemical class tetrahydropyrimidine, which is unrelated to other classes of equine anthelmintics.
- Convenient disposable syringe treats up to 1,200 pounds of body weight.

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STRONGID® C 2X
(*pyrantel tartrate*)

**USES:**
A daily equine dewormer to help break the cycle of parasite infection for horses at high risk of parasite exposure.

**SUPPLIED:**
- 10-pound bucket (80 daily doses per 1,000-pound horse)
- 50-pound bag (400 daily doses per 1,000-pound horse)

**KEY FACTS:**
- Helps prevent Strongylus vulgaris larval infestations and control adult large strongyles as well as adult and larval stages of small strongyles, pinworms and ascarids.
- May be used in mares at any stage of pregnancy or lactation. Daily use of STRONGID C 2X in the last 30 days of gestation is a safe, effective method of reducing foal exposure to parasites.
- Foals may be administered STRONGID C 2X as soon as consistent intake of grain mix is occurring, generally between 2 and 3 months of age.
- STRONGID C 2X is to be administered on a continuous basis either as a top-dress or mixed in the horse’s daily grain ration at the rate of 1.2 mg pyrantel tartrate per pound of body weight daily (0.5 ounce per 250 pounds of body weight).
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<th>ROUNDWORMS</th>
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**LUTALYSE® Injection**  
* (dinoprost tromethamine injection)  

**USES:**  
Indicated for the control of the timing of estrus in estrous cycling mares and clinically anestrous mares that have a corpus luteum.

**SUPPLIED:**  
- 30 mL  
- 100 mL

**KEY FACTS:**  
- Mares treated with LUTALYSE during diestrus will return to estrus within two to four days in most cases and ovulate eight to 12 days after treatment.  
- In anestrous mares, treatment usually results in regression of the corpus luteum followed by estrus/ovulation.  
- In one study with mares in clinical anestrus for an average of 58 days and treated during the breeding season, behavioral estrus was detected in 81 percent at an average time of 3.7 days after injection with 5 mg of LUTALYSE; ovulation occurred an average of 7.0 days after treatment.

**IMPORTANT SAFETY INFORMATION:**  
Women of childbearing age and persons with respiratory problems should exercise extreme caution when handling LUTALYSE. LUTALYSE is readily absorbed through the skin and may cause abortion and/or bronchiospasms, therefore spillage on the skin should be washed off immediately with soap and water. Pregnancy status should be determined prior to treatment, as abortion and parturition have been reported. Aseptic technique should be used to reduce the possibility of post-injection clostridial infections. Do not use in horses intended for human consumption. See full Prescribing Information, attached.
CLOVITE® Conditioner

USES:
Vitamin supplement containing vitamin A, vitamin D and vitamin B12.

SUPPLIED:
• 5-pound pail
• 25-pound pail

KEY FACTS:
• Suggested dosage for young foals and weanlings is 1 to 2 tablespoons daily; for broodmares 2 tablespoons daily; for ponies 1 tablespoon daily; for colts, stallions and horses in training dosage is 1 tablespoon per 400 pounds of body weight.
KOPERTOX®

USES:
Aids in the treatment of thrush in horses and ponies due to organisms susceptible to copper naphthenate.

SUPPLIED:
• 8 ounces
• 16 ounces

KEY FACTS:
• Apply daily to affected hooves with a narrow paint brush until fully healed.
ARVAC®
Equine Arteritis Virus Vaccine

USES:
For the vaccination of healthy nonstressed adult horses as an aid in the prevention of viral abortion and respiratory infection due to equine arteritis virus.

SUPPLIED:
• 10 x 1-dose vial

KEY FACTS:
• Contains a modified-live equine arteritis virus.
• Administer one 1-mL dose intramuscularly.
• Vaccinate males and young animals at any time, but stallions should be vaccinated not less than three weeks prior to breeding.
• Vaccinate mares preferably as maidens or when open.
• Mares in-foal should not be vaccinated until after foaling and then not less than three weeks prior to breeding.
• Maiden and barren mares may be vaccinated anytime but should be vaccinated not less than three weeks prior to breeding.
• Annual booster dose is recommended.
• Store in the dark at 2° to 7°C (35° to 45°F).
• Use entire contents within 60 minutes after rehydration.
• Burn container and unused contents.
• Do not vaccinate within 21 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.
• The vaccinal virus has been modified to the extent that it may be irregularly infective when given by natural portals of entry.
• A high degree of safety has been demonstrated for horses of any age and pregnant mares. However, the vaccination of foals under 6 weeks of age is not recommended except in emergency situations when threatened by natural exposure.
• Pregnant mares SHOULD NOT be vaccinated during the last two months of gestation since a few instances of fetal invasion by vaccinal virus have been demonstrated during this period.

EQUILOID INNOVATOR®
Encephalomyelitis-Tetanus Toxoid Vaccine

USES:
For the vaccination of healthy horses as an aid in the prevention of equine encephalomyelitis due to eastern and western viruses, and tetanus.

SUPPLIED:
• 12 x 1-dose syringe
• 10-dose vial

KEY FACTS:
• Inject one 1-mL dose intramuscularly using aseptic technique, administer a second 1-mL dose three to four weeks after first dose.
• A 1-mL booster dose should be given annually.
• Early revaccination may be advisable when horses are faced with an outbreak or with other conditions which might make heavy exposure likely.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not use within 21 days of slaughter.
• In case of anaphylactoid reaction, administer epinephrine.

EQUIVAC INNOVATOR® EHV-1/4
Rhinopneumonitis Vaccine

USES:
For the vaccination of healthy horses as an aid in the prevention of equine rhinopneumonitis due to types 1 and 4 equine herpesviruses.

SUPPLIED:
• 10-dose vial

KEY FACTS:
• Inject one 1-mL dose intramuscularly using aseptic technique, administer a second 1-mL dose three to four weeks after first dose.
• A 1-mL booster dose should be given annually.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not use within 21 days of slaughter.
• In case of anaphylactoid reaction, administer epinephrine.
**FLUVAC INNOVATOR®**
Equine Influenza Vaccine

**USES:**
For the vaccination of healthy horses as an aid in prevention of equine influenza due to type A₂ viruses.

**SUPPLIED:**
- 12 x 1-dose syringe
- 10-dose vial

**KEY FACTS:**
- As the most trusted equine influenza vaccine, a total of six studies have demonstrated FLUVAC INNOVATOR is effective against emerging equine influenza strains, including AYR/13, KY/99, KY/01, KY/07, KY/14, OH/03, PA/07, RIC/07 and TX/12. Zoetis regularly tests FLUVAC INNOVATOR to ensure its vaccine continues to be effective against emerging EIV isolates.
- FLUVAC INNOVATOR is the only equine influenza vaccine with EIV strain KY/97 that has demonstrated protection against a heterologous challenge with equine influenza strain OH/03.
- FLUVAC INNOVATOR is the only equine influenza vaccine shown to help protect against clinical disease signs for seven months against a heterologous dual-strain challenge.
- Only INNOVATOR vaccines are adjuvanted with MetaStim® to help amplify the horse’s immune response.
- Inject 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to four weeks after the first dose in unvaccinated or naïve horses.
- A 1-mL annual revaccination in previously vaccinated horses is recommended.
- Use entire contents when first opened.
- In some instances, transient local reactions may occur at the injection site.
- Do not use within 21 days of slaughter.
- In case of anaphylactoid reaction, administer epinephrine.

**FLUVAC INNOVATOR® EHV-4/1**
Rhinopneumonitis Influenza Vaccine

**USES:**
For intramuscular vaccination of healthy horses as an aid in the prevention of equine rhinopneumonitis due to types 1 and 4 herpesviruses, and equine influenza due to the type A₂ viruses.

**SUPPLIED:**
- 12 x 1-dose syringe
- 10-dose vial

**KEY FACTS:**
- As the most trusted equine influenza vaccine, a total of six studies have demonstrated FLUVAC INNOVATOR is effective against emerging equine influenza strains, including AYR/13, KY/99, KY/01, KY/07, KY/14, OH/03, PA/07, RIC/07 and TX/12. Zoetis regularly tests FLUVAC INNOVATOR to ensure its vaccine continues to be effective against emerging EIV isolates.
- FLUVAC INNOVATOR is the only equine influenza vaccine with EIV strain KY/97 that has demonstrated protection against a heterologous challenge with equine influenza strain OH/03.
- FLUVAC INNOVATOR is the only equine influenza vaccine shown to help protect against clinical disease signs for seven months against a heterologous dual-strain challenge.
- Only INNOVATOR vaccines are adjuvanted with MetaStim® to help amplify the horse’s immune response.
- Inject 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to four weeks after the first dose in unvaccinated or naïve horses.
- A 1-mL annual revaccination in previously vaccinated horses is recommended.
- Use entire contents when first opened.
- In some instances, transient local reactions may occur at the injection site.
- Do not use within 21 days of slaughter.
- In case of anaphylactoid reaction, administer epinephrine.
**FLUVAC INNOVATOR® 4**  
Encephalomyelitis-Influenza-Tetanus Toxoid Vaccine

**USES:**  
For vaccination of healthy horses as an aid in the prevention of equine encephalomyelitis due to Eastern and Western viruses, equine influenza due to type A viruses, and tetanus.

**SUPPLIED:**  
- 12 x 1-dose syringe  
- 10-dose vial

**KEY FACTS:**  
- As the most trusted equine influenza vaccine, a total of six studies have demonstrated FLUVAC INNOVATOR is effective against emerging equine influenza strains, including AYR/13, KY/99, KY/01, KY/07, KY/14, OH/03, PA/07, RIC/07 and TX/12. Zoetis regularly tests FLUVAC INNOVATOR to ensure its vaccine continues to be effective against emerging EIV isolates.
- FLUVAC INNOVATOR is the only equine influenza vaccine with EIV strain KY/97 that has demonstrated protection against a heterologous challenge with equine influenza strain OH/03.
- FLUVAC INNOVATOR is the only equine influenza vaccine shown to help protect against clinical disease signs for seven months against a heterologous dual-strain challenge.
- Only INNOVATOR vaccines are adjuvanted with MetaStim to help amplify the horse’s immune response.
- Inject 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to four weeks after the first dose in unvaccinated or naïve horses.
- A 1-mL annual revaccination in previously vaccinated horses is recommended.
- Use entire contents when first opened.
- In some instances, transient local reactions may occur at the injection site.
- Do not use within 21 days of slaughter.
- In case of anaphylactoid reaction, administer epinephrine.

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**FLUVAC INNOVATOR® 5**  
Encephalomyelitis-Rhinopneumonitis-Influenza-Tetanus Toxoid Vaccine

**USES:**  
For vaccination of healthy horses as an aid in the prevention of equine encephalomyelitis due to Eastern and Western viruses, equine rhinopneumonitis due to types 1 and 4 herpesviruses, equine influenza due to type A viruses, and tetanus.

**SUPPLIED:**  
- 12 x 1-dose syringe  
- 10-dose vials

**KEY FACTS:**  
- As the most trusted equine influenza vaccine, a total of six studies have demonstrated FLUVAC INNOVATOR is effective against emerging equine influenza strains, including AYR/13, KY/99, KY/01, KY/07, KY/14, OH/03, PA/07, RIC/07 and TX/12. Zoetis regularly tests FLUVAC INNOVATOR to ensure its vaccine continues to be effective against emerging EIV isolates.
- FLUVAC INNOVATOR is the only equine influenza vaccine with EIV strain KY/97 that has demonstrated protection against a heterologous challenge with equine influenza strain OH/03.
- FLUVAC INNOVATOR is the only equine influenza vaccine shown to help protect against clinical disease signs for seven months against a heterologous dual-strain challenge.
- Only INNOVATOR vaccines are adjuvanted with MetaStim to help amplify the horse’s immune response.
- Inject 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to four weeks after the first dose in unvaccinated or naïve horses.
- A 1-mL annual revaccination in previously vaccinated horses is recommended.
- Use entire contents when first opened.
- In some instances, transient local reactions may occur at the injection site.
- Do not use within 21 days of slaughter.
- In case of anaphylactoid reaction, administer epinephrine.
**FLUVAC INNOVATOR® 6**
Encephalomyelitis-Rhinopneumonitis-Influenza-Tetanus Toxoid Vaccine

**USES:**
For vaccination of healthy horses as an aid in the prevention of equine encephalomyelitis due to Eastern, Western and Venezuelan viruses; equine rhinopneumonitis due to types 1 and 4 herpesviruses; equine influenza due to type $A_2$ viruses; and tetanus.

**SUPPLIED:**
- 12 x 1-dose syringe
- 10-dose vial

**KEY FACTS:**
- As the most trusted equine influenza vaccine, a total of six studies have demonstrated FLUVAC INNOVATOR is effective against emerging equine influenza strains, including AYR/13, KY/99, KY/01, KY/07, KY/14, OH/03, PA/07, RIC/07 and TX/12. Zoetis regularly tests FLUVAC INNOVATOR to ensure its vaccine continues to be effective against emerging EIV isolates.
- FLUVAC INNOVATOR is the only equine influenza vaccine with EIV strain KY/97 that has demonstrated protection against a heterologous challenge with equine influenza strain OH/03.
- FLUVAC INNOVATOR is the only equine influenza vaccine shown to help protect against clinical disease signs for seven months against a heterologous dual-strain challenge.
- Only INNOVATOR vaccines are adjuvanted with MetaStim to help amplify the horse’s immune response.
- Inject 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to four weeks after the first dose in unvaccinated or naïve horses.
- A 1-mL annual revaccination in previously vaccinated horses is recommended.
- Use entire contents when first opened.
- In some instances, transient local reactions may occur at the injection site.
- Do not use within 21 days of slaughter.
- In case of anaphylactoid reaction, administer epinephrine.

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**LEPTO EQ INNOVATOR®**
*Leptospira* Pomona Bacterin Vaccine

**USES:**
For the vaccination of healthy horses 6 months of age or older, as an aid in prevention of leptospirosis caused by *Leptospira interrogans* serovar Pomona.

**SUPPLIED:**
- 10-dose tank

**KEY FACTS:**
- Developed specifically for horses, LEPTO EQ INNOVATOR is the first and only equine vaccine to help prevent leptospirosis caused by *L. pomona* and can help reduce the spread of leptospirosis. The vaccine targets *Leptospira interrogans* serovar Pomona, which is most frequently associated with disease in horses.
- LEPTO EQ INNOVATOR helps prevent leptospiremia caused by *L. pomona*, which could, but has not been demonstrated to, help reduce the potential risk of equine recurrent uveitis, abortion or acute renal failure caused by *L. pomona*.
- In safety and efficacy trials, LEPTO EQ INNOVATOR was shown to provide a safe immune response. An efficacy study demonstrated that horses vaccinated with LEPTO EQ INNOVATOR and challenged with *L. pomona* showed 0% urinary shedding.
- In field safety studies with administration of 2,272 vaccine doses, 99.9% of the horses were reaction-free. No significant adverse events were attributed to vaccine administration.
- LEPTO EQ INNOVATOR is USDA-licensed for use in all trimesters of pregnancy. Field safety studies examined the vaccine when used in 457 pregnant mares across the first, second and third trimesters and showed no systemic or local reactions to vaccination.

*Currently, there are no vaccines available with USDA licensed label claims against equine abortions, uveitis or acute renal failure due to *L. pomona*.*
PINNACLE® I.N.  
*Streptococcus Equi* Vaccine

**USES:**
For the vaccination of healthy horses as an aid in the prevention of disease caused by *Streptococcus equi*.

**SUPPLIED:**
• 10 x 1-dose vial

**KEY FACTS:**
• The only two-dose modified-live vaccine developed to help prevent strangles caused by *Streptococcus equi*.
• Intranasal administration helps provide a more natural immune response, stimulating innate and mucosal immunity at the site of natural infection.
• PINNACLE I.N. utilizes a specially designed cannula that helps deliver the vaccine to the pharyngeal (throat) area.
• Aseptically rehydrate with the entire contents of the accompanying sterile diluent. Instill the entire rehydrated vaccine into one nostril using a syringe with applicator tip. Administer a second dose two to three weeks later.
• Annual revaccination is recommended.
• For intranasal use only. Do not administer by any other route than intranasal.
• Use entire contents when first opened.
• After administration, a small number of horses may experience noncontagious transitory upper respiratory signs, including nasal discharge and lymphadenectomy.
• Purpura hemorrhagica may be seen in hypersensitive individuals following exposure to streptococcal proteins.
• Do not vaccinate within 30 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.

PNEUMABORT-K® + 1b  
Equine Rhinopneumonitis Vaccine

**USES:**
The only equine vaccine labeled for use in pregnant mares to aid in the prevention of abortion due to EHV-1 infections, as well as to help prevent respiratory infections caused by equine herpesvirus (EHV)-1p and EHV-1b.

**SUPPLIED:**
• 12 x 1-dose syringe
• 10-dose vial

**KEY FACTS:**
• The 1b subgroup of EHV-1 continues to be an important group, as are abortions associated with EHV-1 infections.18
• PNEUMABORT-K +1b is uniquely adjuvanted for improved immune responses.
• Recommended for whole-herd management — including geldings, stallions and mares — where there is evidence of EHV-1 in the herd population.
• For pregnant mares, aseptically administer one 2-mL dose intramuscularly during the 5th, 7th and 9th months of pregnancy. Revaccinate annually at the 5th, 7th and 9th months of pregnancy.
• For young horses, aseptically administer one 2-mL dose intramuscularly followed by a second 2-mL dose three to four weeks later. Revaccinate with a single 2-mL dose six months after the second primary dose and annually thereafter.
• To ensure proper placement and retention of the vaccine, inject deep into the heavy muscles of the hindquarter.
• Mild exercise to promote absorption is recommended for one week after injection.
• Maiden and barren mares kept in barn or pasture contact with vaccinated pregnant mares should be vaccinated on the same schedule as the pregnant mares with which they are in contact. Mares more than five months pregnant at the time of arrival on a farm should be vaccinated upon arrival and at two-month intervals until foaling.
• Pregnant mares that are in contact with mares that have aborted EHV-1 infected fetuses should be vaccinated. Such vaccination may provide immunity for those mares in the group which are not incubating an abortigenic infection at the time of vaccination.
• Do not vaccinate within 60 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.
**EQUINE ROTAVIRUS VACCINE***

**USES:**
For the vaccination of pregnant mares to provide the passive transfer of antibodies to foals against equine rotavirus.

**SUPPLIED:**
- 10-dose vial

**KEY FACTS:**
- In pregnant mares, inject one 1-mL dose intramuscularly at the eighth month of pregnancy using aseptic technique.
- Administer a second 1-mL dose one month later (i.e., at the ninth month of pregnancy).
- A third 1-mL dose is then given one month later (i.e., at the tenth month of pregnancy).
- Each pregnancy requires vaccination with three doses.
- Use entire contents when first opened.
- Do not vaccinate within 21 days before slaughter.
- In case of anaphylactoid reaction, administer epinephrine.

*This product is conditionally licensed by the USDA while additional efficacy and potency data are being developed.

**TETANUS TOXOID**

**USES:**
For the vaccination of healthy horses as an aid in the prevention of tetanus.

**SUPPLIED:**
- 12 x 1-dose syringe
- 10-dose vial

**KEY FACTS:**
- Inject one 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose four to eight weeks after the first dose. A 1-mL booster dose should be given annually.
- The MetaStim® adjuvant is added to enhance the immune response and to promote the proper rate of vaccine absorption following inoculation.
- Protective tetanus antibody titers usually occur two weeks after the second injection of the initial series. In the event of injury during the course of the initial vaccination program, or if annual boosters have not been given, a prophylactic dose of at least 1500 units of tetanus antitoxin should be given.
- Transitory local reactions at the injection site may occur.
- Do not vaccinate within 21 days before slaughter.
- In case of anaphylactoid reaction, administer epinephrine.
WEST NILE-INNOVATOR®
West Nile Virus Vaccine

USES:
For intramuscular vaccination of healthy horses 10 months of age or older as an aid in the prevention of viremia caused by West Nile virus.

SUPPLIED:
• 12 x 1-dose syringe
• 10-dose vial

KEY FACTS:
• A study showed that separate administration of WEST NILE-INNOVATOR and FLUVAC INNOVATOR® generated four times the immune response to West Nile virus than was produced by a big one-shot combination vaccine.19
• WEST NILE-INNOVATOR was demonstrated to be 96.7% effective against a 2003 outbreak among immunologically naïve horses.20
• Available in four combinations to allow a tailored fit for any equine vaccination program.
• Ready to use; no reconstitution required.
• The only West Nile virus vaccine adjuvanted with MetaStim, the only adjuvant that has been shown to stimulate both cell-mediated and humoral immunity in horses.11,12
• Inject one 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to six weeks after the first dose in unvaccinated or naïve horses.
• A 1-mL revaccination should be given annually in previously vaccinated horses.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not vaccinate within 21 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.

WEST NILE-INNOVATOR® EW
West Nile Virus-Encephalomyelitis Vaccine

USES:
For vaccination of healthy horses as an aid in the prevention of viremia caused by West Nile virus, and as an aid in the prevention of equine encephalomyelitis due to Eastern and Western viruses.

SUPPLIED:
• 10-dose vial

KEY FACTS:
• A study showed that separate administration of WEST NILE-INNOVATOR and FLUVAC INNOVATOR® generated four times the immune response to West Nile virus than was produced by a big one-shot combination vaccine.19
• WEST NILE-INNOVATOR was demonstrated to be 96.7% effective against a 2003 outbreak among immunologically naïve horses.20
• Available in four combinations to allow a tailored fit for any equine vaccination program.
• Ready to use; no reconstitution required.
• The only West Nile virus vaccine adjuvanted with MetaStim, the only adjuvant that has been shown to stimulate both cell-mediated and humoral immunity in horses.11,12
• Inject one 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to six weeks after the first dose in unvaccinated or naïve horses.
• A 1-mL revaccination should be given annually in previously vaccinated horses.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not vaccinate within 21 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.
WEST NILE-INNOVATOR® + EWT
West Nile Virus-Encephalomyelitis-Tetanus Toxoid Vaccine

USES:
For vaccination of healthy horses as an aid in the prevention of viremia caused by West Nile virus, and as an aid in the prevention of equine encephalomyelitis due to Eastern and Western viruses, and tetanus.

SUPPLIED:
• 12 x 1-dose syringe
• 10-dose vial

KEY FACTS:
• A study showed that separate administration of WEST NILE-INNOVATOR and FLUVAC INNOVATOR® generated four times the immune response to West Nile virus than was produced by a big one-shot combination vaccine.19
• WEST NILE-INNOVATOR was demonstrated to be 96.7% effective against a 2003 outbreak among immunologically naïve horses.20
• Available in four combinations to allow a tailored fit for any equine vaccination program.
• Ready to use; no reconstitution required.
• The only West Nile virus vaccine adjuvanted with MetaStim, the only adjuvant that has been shown to stimulate both cell-mediated and humoral immunity in horses.11,12
• Inject one 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to six weeks after the first dose in unvaccinated or naïve horses.
• A 1-mL revaccination should be given annually in previously vaccinated horses.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not vaccinate within 21 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.

WEST NILE-INNOVATOR® + VEWT
West Nile Virus-Encephalomyelitis-Tetanus Toxoid Vaccine

USES:
For vaccination of healthy horses as an aid in the prevention of viremia caused by West Nile virus; and as an aid in the prevention of equine encephalomyelitis due to Eastern, Western and Venezuelan viruses, and tetanus.

SUPPLIED:
• 12 x 1-dose syringe
• 10-dose vial

KEY FACTS:
• A study showed that separate administration of WEST NILE-INNOVATOR and FLUVAC INNOVATOR® generated four times the immune response to West Nile virus than was produced by a big one-shot combination vaccine.19
• WEST NILE-INNOVATOR was demonstrated to be 96.7% effective against a 2003 outbreak among immunologically naïve horses.20
• Available in four combinations to allow a tailored fit for any equine vaccination program.
• Ready to use; no reconstitution required.
• The only West Nile virus vaccine adjuvanted with MetaStim, the only adjuvant that has been shown to stimulate both cell-mediated and humoral immunity in horses.11,12
• Inject one 1-mL dose intramuscularly using aseptic technique. Administer a second 1-mL dose three to six weeks after the first dose in unvaccinated or naïve horses.
• A 1-mL revaccination should be given annually in previously vaccinated horses.
• Use entire contents when first opened.
• In some instances, transient local reactions may occur at the injection site.
• Do not vaccinate within 21 days before slaughter.
• In case of anaphylactoid reaction, administer epinephrine.
Equine Immunization Support Guarantee

Zoetis confidently stands behind its vaccines with the Equine Immunization Support Guarantee, the most comprehensive guarantee available. To be eligible for the Equine Immunization Support Guarantee, a horse must be vaccinated by a veterinarian with a qualifying Zoetis vaccine. If the horse exhibits clinical signs of a corresponding equine disease for which he was vaccinated, Zoetis will help cover the diagnostic investigation to determine the cause of illness. If diagnostics confirm disease, Zoetis will also cover ancillary diagnostic and therapeutic charges up to $5,000.

All products within the FLUVAC INNOVATOR® and WEST NILE-INNOVATOR® lines of vaccines from Zoetis are covered under the Equine Immunization Support Guarantee at no additional cost to the horse owner or veterinarian. Specific diseases covered by the Equine Immunization Support Guarantee include:

- Equine influenza
- Rhinopneumonitis (equine herpesvirus types 1 (EHV-1) and 4 (EHV-4)) (respiratory)
- West Nile
- Tetanus
- Eastern equine encephalomyelitis (EEE)
- Western equine encephalomyelitis (WEE)
- Venezuelan equine encephalomyelitis (VEE)

If a horse is exhibiting clinical signs of disease, the veterinarian simply needs to contact Zoetis Veterinary Medical Information and Product Support (VMIPS) at 1-800-366-5288. Zoetis will work with you to begin immediate diagnostic work.

Contact your Zoetis representative to learn more.
Zoetis is proud to partner with veterinarians to assure horse owners that their horses are receiving the best possible health care and disease protection.

- Program offers direct financial support specific to lack of vaccine efficacy for any properly vaccinated horse, pony or mule. Does not include any other adverse events associated with vaccine administration.
- Horse must be vaccinated by a licensed veterinarian with an established client-patient relationship.
- Veterinarian or clinic must be the primary point of contact for this support program to be valid. Zoetis will direct all requests from horse owners, breeders, etc., to the vaccinating veterinarian, who in turn will need to file the support request on their behalf.
- At the time of the support request, veterinarians must collaborate with Zoetis Veterinary Medical Information and Product Support (VMIPS) in designing an appropriate diagnostic and treatment regimen. A diagnosis must be made using criteria predetermined by VMIPS. To contact VMIPS, call 888-ZOETIS1 (888-963-8471).
- Veterinarians must submit a copy of medical records pertinent to the case, including vaccine brand, serial number and date of vaccination.
- Support requests involving foals less than 6 months of age, or involving onset of disease within three weeks of completing the initial immunization series, are not covered.
- Horse must have received an age-appropriate initial vaccination series per the vaccine label. A Zoetis vaccine must be the most recent vaccine used in the series.
- All payments made under the immunization support program may require a signed consent form from the veterinarian and/or horse owner.

Zoetis reserves the right to modify this program at any time and for any reason.

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Horse Name: ____________________________  Veterinarian Name: ____________________________  Date: ____________

Zoetis will support reasonable diagnostic and treatment costs up to $5,000 if a horse properly vaccinated with one of our antigens contracts the corresponding equine disease:

- West Nile
- Tetanus
- Western equine encephalomyelitis
- Equine influenza
- Eastern equine encephalomyelitis
- Venezuelan equine encephalomyelitis
- Equine rhinopneumonitis (respiratory) caused by equine herpesvirus types 1 (EHV-1) and 4 (EHV-4)

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A BROAD LINE OF TRUSTED VACCINES FROM ZOETIS

*This product is conditionally licensed by the USDA while additional efficacy and potency data are being developed.
PEOPLEFIRST™

Human Capital Solutions

Improve your business by putting your people first.
Since 2009, PeopleFirst™ Human Capital Solutions has provided owners, managers, supervisors and employees of agricultural operations, veterinary clinics, and ranch and farm retail with comprehensive and strategic services to address leadership development, employee training and business objectives and strategies.

SERVICES FOR YOUR EMPLOYEES:

• **Leadership Certificate Program** — Develop leadership skills for your frontline and middle managers. This program is delivered in four classroom sessions over four months in English and Spanish.

• **Leadership Management Portal** — Online technology automates and centralizes employee orientation, ensuring you develop the right skills to achieve organizational objectives. The portal provides continuous training as well as tracking/scoring capabilities. Customize and formalize learning plans.

• **Customized Services** — An array of consultative services can be customized to meet your needs, including full organizational evaluations, engagement and 360-degree feedback, leadership training, change management and executive coaching.

SERVICES FOR YOUR BUSINESS:

• **ProfitSolver®** — The ultimate financial diagnostic tool for your veterinary practice.

• **Strategic Planning** — Custom and standard consulting help create a strategic plan for your business by identifying your three-year objectives, aligning your team around your strategic intent and creating an action plan to accomplish your goals.

• **Succession Planning** — We will work with you to develop a plan to transfer your assets. We are experts at facilitating those difficult conversations, with family members or business partners, to satisfy your goals. We will work with your own lawyer and accountant to put the plan in place.

• **Marketing Planning** — We will work with your staff to develop plans to help your business grow.

• **Customized Services** — An array of consultative services can be customized to meet your business needs, client surveys, scenario planning and action planning.

Contact your Zoetis representative to learn more.
PREScribing
INFORMATION
Amiglyde-V®
AMIKACIN SULFATE
Veterinary Solution
Equivalent to 250 mg amikacin per mL

CAUTION
Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION
Amikacin sulfate is a semi-synthetic aminoglycoside antibiotic derived from kanamycins. It is C22H43N5O13•2H2SO4, D-streptamine, α-(4-amino-2-hydroxy-1-oxobutyl)-2-deoxy-α-D-glucopyranosyl-(1→6)-[6-amino-2-hydroxy-1-exoxybutyl]-2-deoxy-α-D-glucopyranosyl-(1→4)-N1-(3-deoxy-α-D-glucopyranosyl)-(1→3)-sulfate (salt).

ACTION
Antibacterial Activity
The effectiveness of AMIGLYDE-V (amikacin sulfate) in infections caused by Escherichia coli, Pseudomonas sp and Klebsiella sp has been demonstrated clinically in the horse. In addition, the following microorganisms have been shown to be susceptible to amikacin in vitro, although the clinical significance of this action has not been demonstrated in animals:
- Enterobacter sp
- Proteus mirabilis
- Proteus sp (indole positive)
- Serratia marcescens
- Salmonella sp
- Shigella sp
- Providencia sp
- Citrobacter freundii
- Listeria monocytogenes
- Staphylococcus aureus (both penicillin-resistant and penicillin-sensitive)

The aminoglycoside antibiotics in general have limited activity against gram-positive pathogens, although Staphylococcus aureus and Listeria monocytogenes are susceptible to amikacin as noted above.

Amikacin has been shown to be effective against many aminoglycoside-resistant strains due to its ability to resist degradation by aminoglycoside inactivating enzymes known to affect gentamicin, tobramycin and kanamycin2.

CLINICAL PHARMACOLOGY
Endometrial Tissue Concentrations
Comparisons of amikacin activity in endometrial biopsy tissue following intrauterine infusion with that following intramuscular injection of AMIGLYDE-V in mares demonstrate superior endometrial tissue concentrations when the drug is administered by the intrauterine route. Intrauterine infusion of 2 grams AMIGLYDE-V daily for three consecutive days in mares resulted in peak concentrations typically exceeding 40 mcg/g of endometrial biopsy tissue within one hour after infusion. Twenty-four hours after each treatment amikacin activity is still detectable at concentrations averaging 2 to 4 mcg/g. However, the drug is not appreciably absorbed systemically following intrauterine infusion. Endometrial tissue concentrations following intramuscular injection are roughly parallel, but are typically somewhat lower than corresponding serum concentrations of amikacin.

Safety
AMIGLYDE-V is non-irritating to equine endometrial tissue when infused into the uterus as directed (see ADMINISTRATION AND DOSAGE). In laboratory animals as well as equine studies, the drug was generally found not to be irritating when injected intravenously, subcutaneously or intramuscularly.

Although amikacin, like other aminoglycosides, is potentially nephrotoxic, ototoxic and neurotoxic, parenteral (intravenous) administration of AMIGLYDE-V (amikacin sulfate) twice daily at doses of up to 10 mg/kg for 15 consecutive days in horses resulted in no clinical, laboratory or histopathologic evidence of toxicity.

Intrauterine infusion of 2 grams of AMIGLYDE-V 8 hours prior to breeding by natural service did not impair fertility in mares. Therefore, mares should not be bred for at least 8 hours following uterine infusion.

INDICATIONS
AMIGLYDE-V is indicated for the treatment of uterine infections (endometritis, metritis and pyometra) in mares, when caused by susceptible organisms including Escherichia coli, Pseudomonas sp and Klebsiella sp. The use of AMIGLYDE-V in eliminating infections caused by the above organisms has been shown clinically to improve fertility in infected mares.

While nearly all strains of Escherichia coli, Pseudomonas sp and Klebsiella sp, including those that are resistant to gentamicin, kanamycin or other aminoglycosides, are susceptible to amikacin at levels achieved following treatment, it is recommended that the invading organism be cultured and its susceptibility demonstrated as a guide to therapy. Amikacin susceptibility discs, 30 mcg, should be used for determining in vitro susceptibility.

ADMINISTRATION AND DOSAGE
For treatment of uterine infections in mares, 2 grams (8 mL) of AMIGLYDE-V, mixed with 200 mL 0.9% Sodium chloride injection, USP and aseptically infused into the uterus daily for three consecutive days, has been found to be the most efficacious dosage.

CONTRAINDICATIONS
There are no known contraindications for the use of AMIGLYDE-V in horses other than a history of hypersensitivity to amikacin.

PRECAUTIONS
Although AMIGLYDE-V is not absorbed to an appreciable extent following intrauterine infusion, concurrent use of other aminoglycosides should be avoided because of the potential for additive effects.

ADVERSE REACTIONS
No adverse reactions or other side effects have been reported.

WARNING
Do not use in horses intended for human consumption.

REFERENCES

Distributed by: Zoetis Inc.
Kalamazoo, MI 49007

4120K
Revised November 2014 14049300A&P
Local Anesthetic with Rapid and Prolonged Effect for Use in Horses

**Caution:** Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION**
Mepivacaine hydrochloride, 1-methyl-2', 6'-pipecoloxylidide monohydrochloride, is a white, crystalline, odorless powder, readily soluble in water, and very stable in aqueous solution. It is available as a 2% sterile aqueous solution containing sodium chloride (for isotonicity) and 0.1% methylparaben (as preservative). The pH is adjusted with sodium hydroxide or hydrochloric acid.

**CLINICAL PHARMACOLOGY**
Mepivacaine hydrochloride is a potent local anesthetic whose effectiveness and safety have been well established in human medicine and dentistry. Laboratory and clinical studies in animals have confirmed its value in veterinary medicine. Its anesthetic activity is two to two and one half times that of procaine, and it is equal to or better than that of lidocaine. The compound has shown excellent tissue compatibility in laboratory animals and in horses. Moderate transient edema at the site of injection may occur in rare instances.

CARBOCAINE-V Sterile Aqueous Solution produces rapid and marked local anesthesia lasting for several hours. This enables the veterinarian to proceed with intended manipulations without delay and to complete the work under desensitization which is adequate even for prolonged operations. The innate vasoconstrictive activity of CARBOCAINE-V Sterile Aqueous Solution may be enhanced by the addition of epinephrine at 1:100,000. The addition should be carried out aseptically for current use and any unused portion should be discarded.

**INDICATIONS**
CARBOCAINE-V Sterile Aqueous Solution is recommended for infiltration, nerve block, intra-articular and epidural anesthesia for horses. It has also been found useful for topical anesthesia of the laryngeal mucosa prior to ventriculectomy. As with other anesthetics, the dosage varies considerably depending on the anesthetic technique, body area to be desensitized and the surgical procedure.

**WARNINGS**

**PRECAUTIONS**
When administered by a skilled person, CARBOCAINE-V Sterile Aqueous Solution may be employed safely for local infiltration, for common nerve blocking procedures, and for intra-articular and epidural anesthesia.

The following precautions, which are observed with respect to all local anesthetics, also apply to this anesthetic. (1) Injections should always be made aseptically and with frequent aspirations. If blood is aspirated, the needle should be relocated and the injections continued cautiously. (2) When used for epidural anesthesia, care should be taken to avoid injection into the subarachnoid space. The skin should be shaved and sterilized, and the needles used must be sharp and of the proper length. (3) The depth of anesthesia should be checked by pricking the area before manipulations are begun.

**DOSAGE AND ADMINISTRATION**
Pharmacological studies in various species of animals, including horses, have shown that the drug produces complete and effective anesthesia at dosages that are no more than half those needed when procaine is used.

The following dosages have generally proved satisfactory in the horse and are therefore suggested as a guide:

- **For nerve block**
  - (diagnosis of lameness, firing, pain relief in osteoarthritis, navicular disease)—3 to 15 mL
  - (animal standing)—5 to 20 mL
  - (removal of fracture chips, bone and bog spavin, arthritis)—10 to 15 mL
  - (alone or in combination with nerve block or intra-articular anesthesia)—as required

  - For anesthesia of the laryngeal mucosa prior to ventriculectomy
    - CARBOCAINE-V Sterile Aqueous Solution may be administered topically or by infiltration or by a combination of the two. For topical application, a total of 25 to 40 mL applied by spray (3 mL/application) is usually adequate. For infiltration, 20 to 50 mL will suffice.

**HOW SUPPLIED**
CARBOCAINE-V is available as 50 mL Multiple-Dose Vials. Each mL contains 20 mg mepivacaine hydrochloride, 1 mg methylparaben as preservative, and sodium chloride for isotonicity. The pH was adjusted with sodium hydroxide or hydrochloric acid.

Store at controlled room temperature 20° to 25° C (68° to 77° F). Contents should be used within 90 days after the first dose is removed.

NADA #100-703, Approved by FDA

**Distributed by:**
Zoetis Inc.
Kalamazoo, MI 49007

Made in Brazil

Revised: January 2013

054614ZOA&P
GEQ14005
Methylprednisolone acetate injection is contraindicated in animals with arrested tuberculosis, peptic ulcer, and Cushing’s syndrome. The presence of active tuberculosis, diabetes mellitus, osteoporosis, renal insufficiency, predisposition to thrombophlebitis, hyperesthesia, or corrosive ulcer formations contraindicates use of corticosteroids. Intravascular, intrathecally, or other injections of corticosteroids for local effect are contraindicated in the presence of acute inflammatory conditions. Experience of pain, flushing, loss of pulse, and motion, with fever and malaise following injection may indicate that the condition has become septic. Appropriate antibacterial therapy should be instituted immediately.

PRECAUTIONS
DEPO-MEDROL Sterile Aqueous Suspension exerts an inhibitory influence on the mechanisms and the tissue changes associated with inflammation. Vascular permeability is decreased, exudation is reduced gradually. Due to this well localized since significant metabolic effects characteristic of systemic administration of adrenal steroids have not been observed. In a few instances mild and transient improvement of structures other than those injected have been reported. No other systemic effects have been noted. However, it is possible that mild systemic effects may occur following intranasal administration, and this possibility is greater the larger the number of structures injected and the higher the total dose administered.

Procedure for Intranasal Injection. The anatomy of the area to be injected should be reviewed in order to assure that the suspension is properly placed and to determine that large blood vessels are not being avoided. The area to be injected is prepared with an antibacterial solution. The needle is inserted into the synovial cavity near the synovial space. A small amount of synovial fluid withdrawn. If there is an excess of synovia and more than 1 mL of suspension is to be injected, it is well to aspirate a volume of fluid comparable to that which is to be injected. With the needle in place, the suspensory gland is replaced and a second syringe containing the proper amount of suspension which is then injected. In some animals a transient pain is elicited immediately upon injection into the affected cavity. This pain varies from mild to severe and may last for a few minutes up to 12 hours. After injection, the structure may be moved gently a few times to aid mixing of the synovial fluid and the suspension. The site may be covered with a small sterile dressing.

Areas not suitable for injection are those that are anatomically inaccessible such as spinous processes and those like the sacroiliac joints, which are devoid of synovial space. Treatment failures are most common in those conditions which are the result of a chronic inflammatory condition. Experience of pain, flushing, loss of pulse, and motion, with fever and malaise following injection may indicate that the condition has become septic. Appropriate antibacterial therapy should be instituted immediately.

CAUTION
Clinical and experimental data have demonstrated that corticosteroids administered orally or parenterally to animals may induce the first stage of parturition when administered during the last trimester of pregnancy and may precipitate premature parturition followed by dystoca, fetal death, retained placenta and maternal death. Additionally, corticosteroids administered to dogs, rabbits, and rodents during pregnancy have resulted in cleft palate in offspring. Corticosteroids administered to dogs during pregnancy have also resulted in congenital anomalies, including deformed foreleg, phalangeal, and anasarca. Not for human use. Do not use in horses intended for human consumption.

HOW SUPPLIED
DEPO-MEDROL Sterile Aqueous Suspension, 20 mg/mL is available in 20 mL, 40 mL, and 10 mL of injection in 5 mL vials. NADA 12-204, Approved by FDA

Distributed by: Zoets Inc. Kalamazoo, MI 49077

Revised: March 2013

PA034682A&P
GEQ14006
Dissolution

A variety of experimental animals including rats, dogs, suines, rabbits and primates, following oral or topical administration of DMSO, certain eye changes have been observed. These changes, and other happy side effects, are discussed in the index of the lens described as a "lens within a lens". The lens effects are characterized by a decrease in the normal reactivity of the lens cortex, causing the central portion of the lens to become cloudy and discolored. DMSO effect to carry other chemicals through the dermis into the general circulation. If fractures, etc.; this does not obviate the need for specific therapy in such cases. Total daily dosage should not exceed 20 mL. Total duration of therapy should not exceed 30 days of treatment (59).

Side effects are slowly reversible but with a definite species difference, the dog being the slowest to exhibit improvement.

In general, adverse reactions are local, and while they may be prone to being seen in some patients they are not characteristic of a serious nature. Upon topical application, an occasional animal may develop transient erythema, associated with a burning sensation, after the application of the drug; the animal and the distance adjusted to provide a uniform cover of the area. The volume selected by the investigator may be determined in man by referring to the recommendations under PRECAUTIONS AND CONTRAINDICATIONS.

Ashwood-Smith, M.J., LOW TEMPERATURE PRESERVATION OF MOUSE LYMPHOCYTES WITH DIMETHYL SULFOXIDE. 1964 Blood 23, 494–501 Apr 1964

Nagington, J. and Greaves, R.I., PRESERVATION OF TISSUE CULTURE CELLS BY FREEZING. 1964 Fertil. Steril. 15, 222–229 Mar–Apr 1964

10. Rosen, H., Blumenthal, A., Panasevich, R. and McCallum, J., DIMETHYL SULFOXIDE, LENS CHANGES IN ANIMALS, WITH THE USE OF THIS DRUG. This appears to be related to dosage and duration of therapy. The eye changes are slowly reversible but with a definite species difference, the dog being the slowest to exhibit improvement.

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DORMOSEDAN®
(detomidine hydrochloride)

Sedatives and Analgesics For Use in Horses Only

Stable Solution
7 mg/mL

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION: DORMOSEDAN® is a synthetic alpha-2 adrenergic receptor agonist with sedative and analgesic properties. The chemical name of the molecule, 4-[2-(2-hydroxyethyl)ethoxy]phenyl-1-butanol hydrochloride and the generic name is detomidine hydrochloride. It is a white, crystalline, water-soluble substance having a molecular weight of 422.4. The molecular formula is C<sub>19</sub>H<sub>26</sub>N<sub>2</sub>O<sub>3</sub>·HCl.

CHEMICAL STRUCTURE:

![Chemical Structure of DORMOSEDAN®](image)

Each mL of DORMOSEDAN® contains 10.2 mg detomidine hydrochloride, 1.0 mg methylparaben, 0.3 mg sodium chloride, and water for injection, q.s.

CLINICAL PHARMACOLOGY: DORMOSEDAN®, a non-competitive alpha agonist which produces sedation and superficial surgical anesthesia which is dose dependent in its depth and duration. Profound sedation and a characteristic lowering of the head with reduced sensitivity to environmental stimuli (sounds, etc.) are seen with detomidine. A steep period of orientation is characteristically followed by immobility and a firm stance with forelegs well spread. The analgesic effect is most readily seen as an increase in the pain threshold at the body surface. Sensitivity to touch is little affected and in some cases may actually be enhanced.

With detomidine administration, heart rate is markedly decreased, blood pressure is initially elevated, and then a steady decline to normal levels. A transient change in the conductivity of the cardiac muscle may occur as evidenced by partial atrioventricular (AV) and intraventricular (IV) blocks. This change in the conductivity of the cardiac muscle may be prevented by administration of atropine at 0.22 mg/kg body weight. Any effect on blood clotting time or other hemostatic parameters was encountered at doses of 20 to 40 mg/kg of body weight. Respiratory responses include an initial slowing of respiration which is a few seconds to 2 minutes after administration, increasing to normal within 5 minutes, and a delayed increase in tidal volume is followed by an increase.

INDICATIONS: DORMOSEDAN® is indicated for use as a sedative and analgesic to facilitate minor surgical and diagnostic procedures in horses and ponies. It has been used successfully for the following: to calm fearful horses, to provide relief from anxiety, to facilitate broodmare procedures, to control behavioral problems in horses, to provide preanesthetic sedation, to provide postoperative sedation, to reduce stress in kennels, and to tranquilize anxious horses.

CONTRAINDICATIONS: DORMOSEDAN® should not be used in horses with pre-existing AV or SA blocks, with severe coronary insufficiency, endocardial fibroelastosis, compensatory respiratory disease, or when chronic administration is indicated.

CONTRAINDICATIONS: DORMOSEDAN® should not be used in anesthetized or sedated horses as potentially fatal dysrhythmias may occur.

Information on the possible effects of detomidine hydrochloride in breeding horses is limited to controlled clinical reports; therefore, this drug is not recommended for use in breeding animals.

WARNINGS: Do not use in combination with alcohol or benzodiazepines.

HUMAN SAFETY INFORMATION: Care should be taken to ensure that detomidine hydrochloride is not inadvertently ingested by safety studies have indicated that the drug is safe when absorbed orally. Standard oral dosing tests in rabbits using the proposed maximum therapeutic dose have shown detomidine hydrochloride to be nontoxic to the eyes. Primary dermal irritation tests in guinea pigs using up to 5 times the proposed maximum concentration of detomidine hydrochloride on intact and abraded skin have demonstrated that the drug is nontoxic to the skin and is apparently well absorbed orally. However, in accordance with prudent clinical procedures, exposure of eyes or skin should be minimized and affected areas should be washed immediately if exposure does occur. As with all injectable drugs, causing profound physiological effects, moderate precautions should be employed by practitioners when handling and using this product to prevent accidental subcutaneous injection.

PRECAUTIONS: Before administration, careful consideration should be given to administering DORMOSEDAN® to horses approaching or in sedation or anesthetic shock, to horses with advanced liver or kidney disease, or to horses under stress from extreme heat, cold, fatigue, or high altitude. Protect treated horses from temperature extremes. Some horses, although apparently deeply sedated, may still require external cooling. Routine safety measures should be employed to protect practitioners and handlers. Allowing the horse to stand quietly for 5 minutes before administration and for 10-15 minutes after injection may improve the response to DORMOSEDAN®.

DORMOSEDAN® is a potent alpha-2 agonist, and extreme caution should be exercised in its use with other sedatives or analgesics for drugs for which they may produce additive effects.

When using any anesthesia or to help abolish ataxic pain, a complete physical examination and diagnostic workup is necessary to determine the etiology of the pain.

Food and water should be withheld until the sedative effect of DORMOSEDAN® has worn off.

ADVERSE REACTIONS: Incidental reports of sympathomimetic effects have occurred, including 1 or more of the following: excitement, skin, nausea, vomiting, drowsiness, slowing of the upper airway, trembling, miosis, and coughing. The use of sympathomimetics should be avoided since sympathomimetics may potentially have the effects of alpha-2 agonists. Reports of sedative adverse reactions have resolved uneventfully without treatment. Severe adverse reactions should be treated symptomatically. As with all alpha-2 agonists, the potential for cardiac depression exists, including arrhythmias (including ventricular). An unusual effect reported is depression of the myocardial contractility in horses.

SIDE EFFECTS: Horses treated with DORMOSEDAN® exhibit hyperesthesia. Bradypnea usually occurs within 1 minute after injection. The relationship between hyperesthesia and bradycardia is consistent with an adaptive sympathomimetic response to the increased intracranial pressure and intracranial volume with a primary drug-induced bradycardia. Bradycardia, spontaneous, salivation, and slight muscular tremors are frequently seen after administration. Partial transient ventricular pacemaker may be seen. Partial AV and SA blocks occur with decreased heart and respiratory rates. Bradycardia typically occurs during recovery at about 6-8 minutes posttreatment, depending on dosage. Bradycardia or tachycardia is usually seen during the first 5-10 minutes after injection, until the animal has recovered fully.

Because of considerable lowering of the head and sedation, mucus discharge from the nose and occasionally, edema of the head and face may be seen, holding the head in a slightly elevated position generally prevents these effects.

OVERDOSE: Detomidine hydrochloride is inhaled in horses at up to 300 mg/kg of body weight (10 times the dose range and 5 times the high dose), by inhalation in horses. Detomidine hydrochloride at 400 mg/kg body weight administered daily for 3 consecutive days produced microsomal testis of myocardial necrosis in 1 of 8 horses.

DOSEAGE AND ADMINISTRATION:

For Sedation: Monitor DORMOSEDAN® IV at the rates of 0.37-0.64 mg/kg detomidine hydrochloride per kg of body weight (0.5-0.8 mg/kg DORMOSEDAN® per kg of body weight) over 30-60 seconds, depending on the depth of sedation and duration of sedation required. Sufficient sedative effects should be reached within 5-10 minutes after administration and 3-4 minutes after IV administration. Twenty minutes of each 30-60 seconds of sedation and 40 mg/kg will provide approximately 5 minutes to 2 hours of sedation.

For Analgesia: Monitor DORMOSEDAN® at the rates of 10-20 mg/kg detomidine hydrochloride per kg of body weight (0.2-0.4 mg/kg DORMOSEDAN® per kg of body weight) per kg of body weight administered daily for 3 consecutive days produced microsomal testis of myocardial necrosis in 1 of 8 horses.

HOW SUPPLIED: DORMOSEDAN® is supplied in 7- and 28-mL multidose vials.

NADA: FDA-836. Approved by FDA.

Manufactured by: Orion Corporation
Espoo, Finland
Distributed by: Zoetis Inc.
Kalamazoo, MI 49007

20172205-10
Made in Finland

Revised January 2013
DORMOSEDAN GEL is a synthetic alpha2-adrenoceptor agonist with sedative properties. Each mL of DORMOSEDAN GEL contains 7.6 mg detomidine hydrochloride. Detomidine hydrochloride is a white, crystalline, water-soluble substance having a molecular weight of 222.7. The molecular formula is C19H16N2HCl and the structural formula is:

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\[
\text{CH}_3
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**INDICATIONS:**
DORMOSEDAN GEL is indicated for sedation and restraint in horses. 

**DOSEAGE AND ADMINISTRATION:**
DORMOSEDAN GEL produces sedation when administered sublingually at 0.016 mg/lb (0.040 mg/kg). DORMOSEDAN GEL must be placed beneath the tongue of the horse and is not meant to be swallowed. The dosing syringe delivers the product in 0.25 mL increments. The following dosing table may be used to determine the correct dose of DORMOSEDAN GEL (Table 1).

Table 1: Sublingual dosing of DORMOSEDAN GEL

<table>
<thead>
<tr>
<th>Approximate body weight (lb)</th>
<th>Range of doses (mg/lb)</th>
<th>Approximate body weight (kg)</th>
<th>Range of doses (mg/kg)</th>
<th>Dose volume (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>330-429</td>
<td>0.020 – 0.017</td>
<td>150 – 198</td>
<td>0.043 – 0.038</td>
<td>0.25</td>
</tr>
<tr>
<td>440-549</td>
<td>0.022 – 0.017</td>
<td>200 – 249</td>
<td>0.047 – 0.038</td>
<td>0.25</td>
</tr>
<tr>
<td>550-659</td>
<td>0.021 – 0.017</td>
<td>250 – 299</td>
<td>0.046 – 0.038</td>
<td>0.25</td>
</tr>
<tr>
<td>660-769</td>
<td>0.024 – 0.019</td>
<td>300 – 349</td>
<td>0.044 – 0.039</td>
<td>0.25</td>
</tr>
<tr>
<td>770-879</td>
<td>0.019 – 0.017</td>
<td>350 – 399</td>
<td>0.043 – 0.040</td>
<td>0.25</td>
</tr>
<tr>
<td>880-989</td>
<td>0.019 – 0.017</td>
<td>400 – 449</td>
<td>0.043 – 0.040</td>
<td>0.25</td>
</tr>
<tr>
<td>990-1099</td>
<td>0.019 – 0.017</td>
<td>450 – 499</td>
<td>0.042 – 0.040</td>
<td>0.25</td>
</tr>
<tr>
<td>1100-1209</td>
<td>0.019 – 0.017</td>
<td>500 – 549</td>
<td>0.042 – 0.040</td>
<td>0.25</td>
</tr>
<tr>
<td>1210-1312</td>
<td>0.019 – 0.017</td>
<td>550 – 600</td>
<td>0.041 – 0.040</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Use impermeable gloves when handling the product. Remove the syringe from the outer carton. While holding the plunger, turn the ring-stop on the plunger until the ring is able to slide freely up and down the plunger. Position the ring in such a way that the nearest barrel is at the desired volume marking. Turn the ring to secure it in place. Make sure that the horse’s mouth contains no feed. Remove the cap from the tip of the syringe and save for cap replacement. Insert the syringe tip into the horse’s mouth from the side of the mouth, placing the syringe tip beneath the tongue at the level of the circumflex of the mouth. Depress the plunger until the ring-stop contacts the barrel, depositing the product beneath the tongue.

The following table outlines the recommended dose of DORMOSEDAN GEL beneath the tongue.

<table>
<thead>
<tr>
<th>Clinical Sign</th>
<th>DORMOSEDAN GEL (mg)</th>
<th>Placebo (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweating</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Palpe relaxation</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Bradycardia</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Second degree AV block</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Frequent urination</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Piloerection</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Marked ataxia</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Facial edema</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hypersalivation</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Nasal discharge</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Flacculance</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Muscle fasciculations</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Epiphora</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pale mucous membranes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Swoled sheath</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In a laboratory study, transient erythema of the mucous membranes was seen in 2% (0/88) horses that received the recommended dose of detomidine gel.

**WARNINGS:**
For sublingual use in horses only. Do not use in horses intended for human consumption.

**HUMAN WARNINGS:**
Not for human use. Keep out of the reach of children. Use impermeable gloves during drug administration and during procedures that require contact with the horse’s mouth. Following sublingual administration of detomidine oromucosal gel, drug concentrations up to 0.072 mg/mL were measured at 30 minutes post dose in equine saliva, equivalent to less than one percent of the original detomidine concentration in the gel. Mean drug concentrations fall to less than 0.010 mg/mL by 2 hours after drug administration, after which a slow decline occurs for several additional hours.

DORMOSEDAN GEL can be absorbed following direct exposure to skin, eyes, or mouth, and may cause irritation. Skin and mucous contact with the product should be avoided. Use impermeable gloves at all times.

In case of accidental eye exposure, rinse abundantly with fresh water. In case of accidental skin exposure, wash with soap and water. Remove contaminated clothing.

Appropriate precautions should be taken while handling and using gel syringes. Accidental exposure could cause adverse reactions, including death of pets and farm animals, allergic reactions through contact with skin, and systemic reactions from ingestion or inhalation.

Individuals with cardiovascular disease (for example, hypertension or ischemic heart disease) should take special precautions to avoid exposure to this product.

Caution should be exercised when handling sedated horses. Handling or any other sudden stimuli, including noise, may cause a defense reaction in an animal that appears to be heavily sedated.

Rare cases of human abuse of detomidine products have been reported. DORMOSEDAN GEL should be managed to prevent the risk of diversion, through such measures as restriction of access and the use of drug accountability procedures appropriate to the clinical setting.

The material safety data sheet (MSDS) contains more detailed occupational safety information. To report adverse reactions in users or to obtain a copy of the MSDS for this product call 1-888-963-8471.

**CLINICAL PHARMACOLOGY:**
Detomidine is a potent non-narcotic alpha2-adrenoceptor agonist which produces sedation with a central effect inhibiting the transmission of noradrenaline-mediated neurological impulses. Blood pressure is initially increased due to peripheral vasoconstriction, subsequently dropping to normal or slightly below normal levels. Vasoconstriction may cause a decrease in urine output or other signs of mild to mild cutaneous. This initial vasopressor response is accompanied by a compensatory marked decrease in heart rate mediated by a vagal reflex. The peripheral response may feel weak and a transient change in the conductivity of the cardiac muscle may occur, as evidenced by first and second degree atrioventricular block. Other arrhythmias may occur. Detomidine also decreases the respiratory rate and decreases body temperature. Detomidine causes depression of gastrointestinal motility due to decrease in smooth muscle activity, increases blood glucose levels due to inhibition of insulin release, and increases production of urine 2 to 4 hours after treatment. In some horses, sweating, salivation and other signs of pain may occur in response to hypersensitivity. In a laboratory study, transient erythema of the mucous membranes was seen in 2% (0/88) horses that received the recommended dose of detomidine gel.

**WARNING:**
Moderate ataxia was observed in 25% of DORMOSEDAN GEL-treated horses (0% placebo) at 40 minutes post treatment. Moderate ataxia continued 60 minutes post treatment in 5% and to 120 minutes for 4% of DORMOSEDAN GEL-treated horses.

**CONTRAINDICATIONS:**
DORMOSEDAN GEL is contraindicated in horses with known hypersensitivity to detomidine. Intravenous potentiated sulfonamides should not be used in anesthetized or sedated horses as potentially fatal dysrhythmias may occur. Intravenous administration of detomidine may cause a decrease in ventricular and atrioventricular (AV) or sino-atrial (SA) blocks, respiratory disease, or in horses with compromised cardiorespiratory function, ischemic heart disease, or other means of strong restraint to enable similar procedures to be carried out. Horses were enrolled in the study if they were a yearling or older, in satisfactory body condition, and had a history of requiring sedation or other means of strong restraint to enable similar procedures to be carried out. Horses were randomly assigned to receive DORMOSEDAN GEL sublingually at 0.040 mg/kg or placebo gel.
After administration of treatment, each horse’s level of sedation, degree of ataxia, heart rate and rhythm, and respiratory rate were assessed and measured to recovery. After an appropriate period of time elapsed to allow sedation to develop, a study veterinarian assessed and scored the ability to attempt and to complete the veterinary or husbandry procedure. One hundred and twenty-nine DORMOSEDAN GEL-treated and 42 placebo-treated horses were included in the statistical analysis of effectiveness. Ninety-nine horses were excluded from the analysis due to failure to meet inclusion criteria or due to major protocol deviations. The veterinary or husbandry procedure was successfully completed for 88 of 129 DORMOSEDAN GEL-treated horses (76%) but only 3 of 42 placebo-treated horses (7%) (Table 3). The difference between the two treatments was statistically significant (p<0.0005).

Table 3: Treatment success rates (number of horses) by treatment group

<table>
<thead>
<tr>
<th>Ability to perform the procedure score*</th>
<th>DORMOSEDAN GEL</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=129</td>
<td>N=42</td>
</tr>
<tr>
<td>0</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>54</td>
<td>1</td>
</tr>
<tr>
<td>Success (score 2 or 3)</td>
<td>98</td>
<td>3</td>
</tr>
</tbody>
</table>

* 0: Poor – Strong resistance. 1: Fair. Moderate resistance. 2: Good. Some resistance, but the procedure could be performed. 3: Excellent. Procedure could be easily performed with insignificant resistance.

The following success rates with DORMOSEDAN GEL were recorded for electric clipping of hair (48%), cleaning the prepuse (81%), manual floating of teeth (99%), hoof trimming or shoeing (86%), passage of a nasogastric tube or endoscope (80%), or radiography (74%). At 40 minutes post dosing, 94% of DORMOSEDAN GEL-treated horses showed minimal, moderate or marked sedation compared with 14% of the horses treated with placebo. All DORMOSEDAN GEL-treated horses had recovered from sedation by 240 minutes post treatment.

DORMOSEDAN GEL was correctly administered sublingually (beneath the tongue) in 57% of horses with mild or no objection.

ANIMAL SAFETY:
In a multiple dose target animal safety study, DORMOSEDAN GEL was administered on three consecutive days to 6 horses per treatment group at 0, 1, 3 and 5 times the recommended label dose of 0.040 mg/kg.

The recommended dose (1X) induced sedation. Head droop caused transient edema of the head area, nasolacrimal discharge, and congestion of oral mucous membranes. Ataxia, sweating, and reversible penile prolapse were observed. Erythematous mucous membranes were seen at the area of dose application in 2/6 horses. Transient reductions were seen in heart rate, respiratory rate, and gut motility. Electrocardiography revealed increased incidences of vagally mediated arrhythmias (sinus arrhythmia, sinus block, 1st and 2nd degree atrioventricular block) as well as atrial or ventricular premature beats in the majority of horses. No clinical abnormalities were associated with the transient arrhythmias. Excessive or erratic urination were seen in isolated cases.

Similar treatment related findings were seen in horses receiving 3X and 5X doses. In most cases the incidence, severity, and duration of the findings were dose dependent. All findings in all dose groups were representative of the alpha2-adrenoreceptor drugs used in horses.

STORAGE INFORMATION:
Store at controlled room temperature 20-25°C (68-77°F), with excursions permitted to 15-30°C (59-86°F), in the original package.

HOW SUPPLIED:
3.0 mL graduated oral dosing syringe, 7.6 mg/mL detomidine hydrochloride.

DORMOSEDAN® is a trademark of Orion Corporation.

128717US-2A&P
DOR14004
For intramuscular injection in the horse.

CAUTION
Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian. Federal Law prohibits extra-
table use of this drug in cattle for disease prevention purposes.

DESCRIPTION
EXCEDE Sterile Suspension is a ready-to-use formulation that contains the crystalline free acid of ceftiofur, which is
a broad spectrum cephalosporin antibiotic active against Gram-positive and Gram-negative bacteria including
ß-lactamase-producing strains. Treatment of bacteria in vitro, resulting in inhibition of cell wall synthesis.

Each mL of this ready-to-use sterile suspension contains ceftiofur crystalline free acid equivalent to 200 mg ceftiofur,
in a caprylic/capric triglyceride (Miglyol®) and cottonseed oil based suspension.

Figure 1. Structure of ceftiofur crystalline free acid:

-Ceftiofur crystalline free acid: (6R,7R)-3-[(2-furanylcarbonyl)thio]methyl)-7-[(2-furanylcarbonyl)thio]-7-oxo-8-
-azabicyclo[3.2.1]octan-2-1-carboxylic acid

INDICATION
EXCEDE Sterile Suspension is indicated for the treatment of respiratory tract infections in horses caused by susceptible strains of Streptococcus equi subspp. zooepidemicus.

TABLE 1. Dosing Schedule for EXCEDE Sterile Suspension.

Contraindications
EXCEDE Sterile Suspension is contraindicated in horses with known allergy to ceftiofur or to ß-lactam (penicillins
and cephalosporins) group antimicrobials. Due to the extended exposure in horses, in the drug’s pharmacokinetic
properties, adverse reactions may require prolonged care.

WARNINGS
Not for use in humans. For use in animals only. Keep this and all drugs out of reach of children. Consult a physician
in case of accidental ingestion.

Do not use in horses intended for human consumption.

Penicillins and cephalosporins can cause allergic reactions in sensitized individuals. Topical exposure to such
amino
corticosteroids, ceftiofur, may elicit mild to severe allergic reactions in some individuals. Repeated or prolonged
exposure may lead to sensitization. Avoid direct contact of the product with the skin, eyes, mouth and mucous
membranes. The skin may be avoided by wearing protective gloves. Persons with a known sensitivity to penicillins
or cephalosporins should avoid exposure to this product. In the case of accidental eye exposure, flush with
soapy water. In case of accidental skin or eye exposure, wash with soap and water. To remove contaminated clothing.
If allergic reaction occurs (e.g. skin rash, hives, difficult breathing) seek medical attention.

ANTIBACTERIAL WARNINGS
Use of antimicrobial drugs in the absence of a susceptible bacterial infection is unlikely to provide benefit to treated
animals and may increase the risk of the development of drug-resistant bacteria.

PRECAUTIONS
The administration of antimicrobials to horses under conditions of stress may be associated with acute diarrhea that
may increase the risk of the development of drug-resistant bacteria.

The use of ceftiofur has not been evaluated in horses less than 4 months of age and in breeding, pregnant, or lactating
animals. The long-term effects on injection sites have not been evaluated.

ADVERSE REACTIONS
The injection of EXCEDE Sterile Suspension in the horse may cause firmness, swelling, sensitivity, and/or edema at
the injection site (see ANIMAL SAFETY).

A total of 372 horses of various species, ranging in age from 4 months to 20 years, were included in the field study
safety analysis. Adverse reactions reported in horses treated with EXCEDE and the placebo control are summarized in
Table 2.

The material safety data sheet (MSDS) contains more detailed occupational safety information. To obtain a material
safety data sheet or to report any adverse event please call 1-888-963-8471.

CLINICAL PHARMACOLOGY
Ceftiofur is a ß-lactam antibiotic from the cephalosporin class. Beta lactams exert their inhibitory effect by interfering
with bacterial cell wall synthesis. This interference is primarily due to its binding to the phenylglycine
binder. Other cephalosporins, cephalosporinfree acid, is rapidly metabolized to desfuroylceftiofur, the primary metabolite with antimicrobial activity. Two intramuscular injections of EXCEDE Sterile Suspension at a dose of 6.6 mg/kg body weight in the horse provide concentrations of cephalosporin and desfuroylceftiofur related metabolites in plasma above the therapeutic target of 0.5 mg/L, for the entire 36 hour (4 day) dosing interval and for 6 days after the second injection (or a total of 10 days from the beginning of treatment) (see Figure 2 and Table 3).

Table 2. Number of Horses with Adverse Reactions During the Field Study with EXCEDE.

Table 3. Pharmacokinetic parameters measured after either two intramuscular injections of EXCEDE Sterile Suspens-
ion at a dose of 3.0 mg (6.6 mg/kg) BW at a 4 hour interval or at a dose of 1.7 mg (4.4 mg/kg) BW once daily for 10 consecutive days as determined in the following table.

Figure 2. Average plasma concentration of cephalosporin and desfuroylceftiofur related metabolites in horses following
the intramuscular administration of either EXCEDE Sterile Suspension at a dose of 3.0 mg (6.6 mg/kg) administered twice at a 96 hour interval or MAXCELE Sterile Powder at a dose of 1.0 mg (2.2 mg/kg) BW once daily for 10 consecutive days.

The use of ceftiofur has not been evaluated in horses less than 4 months of age and in breeding, pregnant, or lactating
animals and may increase the risk of the development of drug-resistant bacteria.

Figure 2. Average plasma concentration of cephalosporin and desfuroylceftiofur related metabolites in horses following
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Microbiology
Ceftiofur is a ß-lactam antibiotic. Like other ß-lactam antimicrobials, ceftiofur exerts its inhibitory effect by interfer-
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The material safety data sheet (MSDS) contains more detailed occupational safety information. To obtain a material
safety data sheet or to report any adverse event please call 1-888-963-8471.

CLINICAL PHARMACOLOGY
Ceftiofur is a β-lactam antibiotic from the cephalosporin class. Beta lactams exert their inhibitory effect by interfering
with bacterial cell wall synthesis. This interference is primarily due to its binding to the phenylglycine
binder. Other cephalosporins, cephalosporin free acid, is rapidly metabolized to desfuroylceftiofur, the primary metabolite with antimicrobial activity. Two intramuscular injections of EXCEDE Sterile Suspension at a dose of 6.6 mg/kg body weight in the horse provide concentrations of cephalosporin and desfuroylceftiofur related metabolites in plasma above the therapeutic target of 0.5 mg/L, for the entire 36 hour (4 day) dosing interval and for 6 days after the second injection (or a total of 10 days from the beginning of treatment) (see Figure 2 and Table 3).

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The use of ceftiofur has not been evaluated in horses less than 4 months of age and in breeding, pregnant, or lactating
animals and may increase the risk of the development of drug-resistant bacteria.
KETOFEN® (ketoprofen) Sterile Solution, 100 mg/mL

For intravenous use in horses only.

CAUTION
Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION
Ketoprofen is a non-steroidal anti-inflammatory agent of the propionic acid class that includes ibuprofen, naproxen and fenoprofen. Each mL of KETOFEN (ketoprofen) contains 100 mg of ketoprofen in an aqueous formulation containing: L-Arginine, 70 mg; citric acid (to adjust pH); benzyl alcohol, 0.025 g (as preservative).

It is packaged in a multiple dose bottle.

PHARMACOLOGY
KETOFEN is a non-narcotic, non-steroidal anti-inflammatory agent with analgesic and antipyretic properties.

In horses, intravenous dosages of ketoprofen ranging from 0.5 to 1.5 mg/lb resulted in dosage dependent anti-inflammatory effects in the chronic adjuvant carpitis model as depicted in the following graph.

TOXICITY
Horses were found to tolerate ketoprofen given intravenously at dosages of 0, 1, 3 and 5 mg/lb once daily for 15 consecutive days (up to five times the recommended dosage for three times the usual duration) with no evidence of toxic effects. In clinical studies, intravenous injection of 1 mg/lb/day for five days resulted in no injection site irritation or other side effects.

At 15-fold overdose (15 mg/lb/day) for five days one of two horses developed severe laminitis, but no gross lesions or histologic changes were observed. The toxic effects observed in the horses given a 25-fold overdose (25 mg/lb/day) for five days included inappetence, depression, icterus, abdominal swelling and postmortem findings of gastritis, nephritis and hepatitis.

INDICATION
KETOFEN® (ketoprofen) is recommended for the alleviation of inflammation and pain associated with musculoskeletal disorders in the horse.

ADMINISTRATION AND DOSAGE
The recommended dosage is 1 mg/lb (1 mL/100 lbs) of body weight once daily. Treatment is administered by intravenous injection and may be repeated for up to five days. Onset of activity is within two hours with peak response by 12 hours.

CONTRAINDICATIONS
There are no known contraindications to this drug when used as directed. Intra-arterial injection should be avoided. Do not use in a horse if it has previously shown hypersensitivity to ketoprofen.

CAUTION
This product should not be used in breeding animals since the effects of KETOFEN on fertility, pregnancy or fetal health in horses have not been determined.

PRECAUTIONS
Studies to determine activity of KETOFEN when administered concomitantly with other drugs have not been conducted. Drug compatibility should be monitored closely in patients requiring adjunctive therapy.

WARNING
Do not use in horses intended for human consumption.

SIDE EFFECTS
During investigational studies, no significant side effects were reported.

HOW SUPPLIED
KETOFEN (ketoprofen) Solution 100 mg/mL is available in 50 mL and 100 mL multidose bottles.

Store at controlled room temperature 20° to 25°C (68° to 77°F).

Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007
Revised: January 2013
**Lutalyse® Injection**
(dinoprost injection)

5 mg dinoprost/mL as dinoprost tromethamine

Caution: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION**
LUTALYSE® Injection (5 mg dinoprost/mL) is a sterile solution containing the naturally occurring prostaglandin F2 alpha. dinoprost tromethamine salt. Each mL contains dinoprost tromethamine equivalent to 5 mg dinoprost: also, benzyl alcohol, 16.5 mg added as preservative. When necessary, pH was adjusted with sodium hydroxide and/or hydrochloric acid. Dinoprost tromethamine is a white or slightly off-white crystalline powder that is readily soluble in water at room temperature in concentrations to at least 200 mg/mL.

**INDICATIONS FOR USE**

**Cattle:** LUTALYSE Injection is indicated as a luteolytic agent. LUTALYSE Injection is effective only in those cattle having a corpus luteum, i.e., those which ovulated at least five days prior to treatment. Future reproductive performance of animals that are not cycling will be unaffected by injection of LUTALYSE Injection.

- For estrus synchronization in beef cattle and non-lactating dairy heifers
- For control of (silent) estrus in lactating dairy cows with a corpus luteum
- For treatment of pyometra (chronic endometritis) in cattle
- For abortion of feedlot and other non-lactating cattle
- For use with FACTREL (gonadorelin injection) Injection to synchronize estrous cycles to allow fixed-time artificial insemination (FTAI) in lactating dairy cows
- For use with EAZI-BREED® CIDR® (progesterone intravaginal implant) Cattle Insert for synchronization of estrus in lactating dairy cows
- For use with EAZI-BREED® CIDR® (progesterone intravaginal implant) Cattle Insert for synchronization of estrus in suckled beef cows and replacement beef and dairy heifers, advancement of first postpartum estrus in suckled beef cows, and advancement of first puberal estrus in beef heifers

**Mares:**
- For partition induction in swine
- For estrus synchronization in beef cattle and non-lactating dairy heifers
- For control of (silent) estrus in lactating dairy cows
- For abortifacient effect in feedlot and other non-lactating cattle during the first 100 days of gestation

**Swine:**
- For estrus synchronization in swine

**DOSAGE AND ADMINISTRATION**

As with any multi-dose vial, practice aseptic techniques in withdrawing each dose to decrease the possibility of post-injection bacterial infections. Adequately clean and disinfect the vial stopper prior to entry with a sterile needle and syringe. Use only sterile needles, and use each needle only once.

No vial stopper should be entered more than 20 times. For this reason, the 100 mL bottle should only be used for cattle. The 30 mL bottle may be used for cattle, swine, or mares.

**Cattle:**

1. For Estrus Synchronization in Beef Cattle and Non-Lactating Dairy Heifers. LUTALYSE Injection is used to control the timing of estrus and ovulation in estrous cycling cattle that have a corpus luteum. Inject a dose of 5 mL LUTALYSE Injection (25 mg dinoprost) intramuscularly either once or twice at a 10 to 12 day interval. With the single injection, cattle should be bred at the usual time relative to estrus. With the two injections cattle can be bred after the second injection either at the usual time relative to detected estrus or at about 80 hours after the second injection of LUTALYSE Injection. Estrus is expected to occur 1 to 5 days after injection if a corpus luteum was present. Cattle that do not become pregnant to breeding at estrus on days 1 to 5 after injection will be expected to return to estrus in about 18 to 24 days.

2. For Unobserved (Silent) Estrus in Lactating Dairy Cows with a Corpus Luteum. Inject a dose of 5 mL LUTALYSE Injection (25 mg dinoprost) intramuscularly. Breed cows as they are detected in estrus. If estrus has not been observed by 80 hours after injection, breed at 80 hours. If the cow returns to estrus, breed at the usual time relative to estrus.

**Management Considerations:**
Many factors contribute to success and failure of reproduction management, and these factors are important also when time of breeding is to be regulated with LUTALYSE Injection. Some of these factors are:

- Cattle must be ready to breed—they must have a corpus luteum and be healthy;
- Nutritional status must be adequate as this has a direct effect on conception and the initiation of estrus in heifers or return of estrous cycles in cows following calving;
- Physical facilities must be adequate to allow cattle handling without being detrimental to the animal;
- Estrus must be detected accurately if timed AI is not employed;
- Semen of high fertility must be used;
- Semen of high fertility must be used;

A successful breeding program can employ LUTALYSE Injection effectively, but a poorly managed breeding program will continue to be poor when LUTALYSE Injection is employed unless other management deficiencies are remedied first. Cattle expressing estrus following LUTALYSE Injection are receptive to breeding by a bull. Using bulls to breed large numbers of cattle expressing estrus following LUTALYSE Injection is a relatively specific time (treatment earlier than 3 days prior to normal predicted farrowing may result in increased piglet mortality). It is important that adequate records be maintained on (1) the average length of gestation period for the animals on a specific location, and (2) the breeding and projected farrowing dates for each animal. This information is essential to determine the appropriate time for administration of LUTALYSE Injection.

**Mares:** LUTALYSE Injection is indicated for its luteolytic effect in mares. Administer a single intramuscular injection of 1 mg per 100 lbs (45.5 kg) body weight which is usually 1 mL to 2 mL LUTALYSE Injection. This luteolytic effect can be utilized to control the timing of estrus in estrous cycling and clinically anestrous mares that have a corpus luteum in the following circumstances:

1. **Controlling Time of Estrus of Estrous Cycling Mares:** Mares treated with LUTALYSE Injection during diestrus (4 or more days after ovulation) will return to estrus within 2 to 4 days in most cases and ovulate 8 to 12 days after treatment. This procedure may be utilized as an aid to scheduling the use of stallions.
2. **Difficult-to-Breed Mares:** In extended diestrus there is failure to exhibit regular estrous cycles which is different from true anestrus. Many mares described as anestrous during the breeding season have serum progesterone levels consistent with the presence of a functional corpus luteum. A proportion of "barren", maiden, and lactating mares do not exhibit regular estrous cycles and may be in extended diestrus. Following abortion, early fetal death and resorption, or as a result of "pseudopregnancy", there may be serum progesterone levels consistent with a functional corpus luteum. Treatment of such mares with LUTALYSE Injection usually results in regression of the corpus luteum followed by estrus and/or ovulation. Treatment of "anestrous" mares which abort subsequent to 36 days of pregnancy may not result in return to estrus due to presence of functional endometrial cups.

**WARNINGS AND PRECAUTIONS**

**User Safety:** Not for human use. Keep out of the reach of children. Women of childbearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this product. In the early stages, women may be unaware of their pregnancies. Dinoprost tromethamine is readily absorbed through the skin and can cause abortion and/or anaphylactoid reactions. Accidental spillage on the skin should be washed off immediately with soap and water.

To report suspected adverse events, for technical assistance or to obtain a copy of the Material Safety Data Sheet (MSDS) contact Zoetis Inc. at 1-888-963-8471. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinary/SafetyHealth.

**Residue Warnings:** No milk discard or preslaughter drug withdrawal period is required for labeled uses in cattle. No preslaughter drug withdrawal period is required for labeled uses in swine. Use of this drug must be stopped at least 36 days prior to the date on which the animal would be slaughtered for human consumption.

**Animal Safety Warnings:** Severe localized cutisal infections associated with injection of LUTALYSE Injection have been reported. In rare instances, such infections have resulted in death. Non-steroidal anti-inflammatory drugs may inhibit prostaglandin synthesis; therefore Do not administer to pregnant cattle, unless abortion is desired. Cattle administered a progestin would be expected to have a reduced response to LUTALYSE Injection. Do not administer to sows and/or gilts prior to 3 days of normal gestation.
predicted farrowing as an increased number of stillbirths and postnatal mortality may result. In mares, LUTALYSE Injection is ineffective when administered prior to day-5 after ovulation. Mare pregnancy status should be determined prior to treatment since LUTALYSE Injection has been reported to induce abortion and parturition when sufficient doses were administered. Mares should not be treated if they suffer from either acute or subacute disorders of the vascular system, gastrointestinal tract, respiratory system, or reproductive tract.

ADVERSE REACTIONS

Cattle: Limited salivation has been reported in some instances.

Swine: These side effects were nausea and pruritus, slight incoordination, nestling behavior, itching, urination, defecation, abdominal muscle spasms, tail movements, hyperpyrexia or dyspnea, increased vocalization, salivation, and at the 100 mg (10x) dose only, possible vomiting. These side effects are transient, lasting from 10 to 30 minutes, and were not detrimental to the health of the animal.

Mares: The most frequently observed side effects are sweating and decreased rectal temperature. However, these have been transient in all cases observed and have not been detrimental to the animal. Other reactions were seen in increased heart rate, increase in respiration rate, some abdominal discomfort, locomotor incoordination, and lying down. These effects are usually seen within 15 minutes of injection and disappear within one hour. Mares usually continue to eat during the period of expression of side effects. Administration of several hundred mares treated with LUTALYSE Injection was reported but was not confirmed.

Contact Information: To report adverse reactions call Zoetis Inc. at 1-888-963-8471.

CLINICAL PHARMACOLOGY

General Biologic Activity: Prostaglandins occur in nearly all mammalian tissues. Prostaglandins, especially PGE's and PGF's, have been shown, in certain species, to 1) increase at time of parturition in amniotic fluid, maternal plasma, myometrium, and blood, 2) stimulate myometrial activity, and 3) to induce either abortion or parturition. Prostaglandins, especially PGF2α, have been shown to 1) increase in the uterus and blood to levels similar to levels achieved by exogenous administration which elicited luteolysis, 2) be capable of crossing from the uterine vein to the ovarian artery (sheep), 3) be related to increased induction of luteolysis (sheep), and 4) be capable of crossing the corpus luteum of most mammalian species studied to date. Prostaglandins have been reported to result in release of pituitary tropic hormones. Data suggest prostaglandins, especially PGE's and PGF's, may be involved in the process of ovulation and gamete transport. Also PGF2α has been reported to cause increase in blood pressure, bronchoconstriction, and smooth muscle stimulation in certain species.

Metabolism: A number of metabolism studies have been done in laboratory animals. The metabolism of trilium labeled dinoprost (H PGF2 alpha) in the rat and in the monkey was similar. Although quantitative data was not given, qualitatively similar metabolites were produced. A study demonstrated that equimolar doses of H PGF2 alpha Tham and H PGF2 alpha free acid administered intravenously to rats demonstrated no significant differences in blood concentration of dinoprost. An interesting observation in the above study was that the radioactive dose of H PGF2 alpha rapidly distributed in tissues and dissipated in tissues with the almost same curve as it did in the serum. The half-life of dinoprost in bovine blood has been reported to be on the order of minutes. A complete study on the distribution of H PGF2 alpha Tham in the tissue of rats was well described and the work done in the cow. Cattle serum collected during 24 hours after doses of 0 to 250 mg dinoprost have been assayed by RIA for dinoprost and the 15-keto metabolites. These data support previous reports that dinoprost has a half-life of minutes. Dinoprost is a natural prostaglandin. All systems associated with dinoprost metabolism exist in the body; therefore, no new metabolic, transport, excretory, binding or other systems need be established by the body to metabolize injected dinoprost.

TARGET ANIMAL SAFETY

Laboratory Animals: Dinoprost was non-toxicogenic in rats when administered orally at 1.25, 3.2, 10.0 and 20.0 mg dinoprost/kg/day from day 6-15 of gestation or when administered subcutaneously at 0.5 and 1.0 mg/kg/day on gestation days 6, 7 and 8 or 9, 10 and 11 or 12, 13 and 14. Dinoprost was non-toxicogenic in the rabbit when administered either subcutaneously at doses of 0.5 and 1.0 mg dinoprost/kg/day on gestation days 6, 7 and 8 or 9, 10 and 11 or 12, 13 and 14 or 15, 16 and 17 or orally at doses of 0.01, 0.1 and 1.0 mg dinoprost/kg/day on days 6-18 or 5.0 mg/kg/day on days 8-18 of gestation. A slight and marked embryo lethal effect was observed in dams given 5.0 mg dinoprost/kg/day respectively. This was due to the expected toxicological properties of the agent. The 14-day continuous intravenous infusion study in rats at 20 mg PGF2α per kg body weight indicated prostaglandins of the F series could induce bone deposition. However, such bone changes were not observed in monkeys similarly administered LUTALYSE Injection at 15 mg dinoprost/kg per kg weight for 14 days.

Cattle: In cattle, evaluation was made of clinical observations, clinical chemistry, hematology, urinalysis, organ weights, and gross plus microscopic measurements following treatment with various doses up to 250 mg dinoprost administered twice intramuscularly at a 10 day interval or doses of 25 mg administered daily for 10 days. There was no unequivocal effect of dinoprost on the hematology or clinical chemistry parameters measured. Cattle, a slight transitory increase in heart rate was detected. Rectal temperature was elevated above 1.5 °F through the 6th hour after injection with 250 mg dinoprost, but had returned to baseline after 24 hours after injection. No dinoprost associated gross lesions were detected. There was no evidence of toxicological effects. Thus, dinoprost had a safety factor of at least 10X on injection (25 mg luteolytic dose vs. 250 mg safe dose), based on studies conducted with cattle. At luteolytic doses, dinoprost had no effect on progeny. If given to a pregnant cow, it may cause abortion; the dose required for abortion varies considerably with the stage of gestation. Induction of abortion in feedlot cattle at stages of gestation up to 100 days of gestation did not result in abortions, fetal resorption or death. The history of the fetus at this early stage of gestation should not lead to complications at abortion. However, induction of parturition or abortion with any exogenous compound may precipitate dystocia, fetal death, retained placenta and newborn mortality.

Swine: In pigs, evaluation was made of clinical observations, food consumption, clinical pathologic determinations, body weight changes, urinalysis, organ weights, and gross and microscopic observations following treatment with single doses of 30.30 and 100 mg dinoprost administered intramuscularly. The results indicated no treatment related effects from dinoprost treatment that were deleterious to the health of the animals or to their offspring.
Naxcel®
brand of ceftiofur sodium
sterile powder
For intramuscular and subcutaneous injection in cattle only. For intramuscular injection in swine, sheep, goats, and horses. For subcutaneous injection only in dogs, day-old chickens and day-old turkey poults. This product may be used in livestock and pets.

CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS
NAXCEL Sterile Powder is indicated for the control of early mortality, associated with E. coli and Proteus mirabilis.
NAXCEL Sterile Powder is indicated for treatment of respiratory infections in horses associated with Pasteurella multocida.
NAXCEL Sterile Powder is indicated for treatment of pododermatitis associated with Actinobacillus pleuropneumoniae.
NAXCEL Sterile Powder is indicated for the treatment of Actinobacillus pleuropneumoniae (pododermatitis) associated with Histophilus somni.
NAXCEL Sterile Powder is indicated for the treatment of Actinobacillus pleuropneumoniae (pododermatitis) associated with Pasteurella multocida.

DOSAGE AND ADMINISTRATION

Sheep
Administer by subcutaneous injection in the neck region of day-old turkey poults at the dosage of 0.17 to 0.5 mg ceftiofur/poult. One mL of the 50 mg/mL reconstituted solution will treat approximately 100 to 294 day-old turkey poults. Reconstituted NAXCEL Sterile Powder is to be administered by subcutaneous injection only.

Swine
Administer to swine by intramuscular or subcutaneous injection at the dosage of 0.5 to 1.0 mg ceftiofur per pound (1.1 to 2.2 mg/kg) of body weight (1 mL of reconstituted sterile solution per 100 lbs body weight). Treatment should be repeated at 24-hour intervals for a total of three consecutive days.

Sher
Administer by subcutaneous injection at the dosage of 0.5 to 1.0 mg ceftiofur per pound (1.1 to 2.2 mg/kg) of body weight (1 mL of reconstituted sterile solution per 100 lbs body weight). Treatment should be repeated at

24-hour intervals for a total of three consecutive days. Additional treatments may be given on days four and five for animals which do not show a satisfactory response (not recovered) after the initial three treatments. Selection of dosage (0.5 to 1.0 mg/kg) should be based on the practitioner’s judgment of severity of disease (i.e., extent of elevated body temperature, depressed physical appearance, increased respiratory rate, coughing and/or loss of appetite).

Chemical Structure of Ceftiofur Sodium

Chemical Name of Ceftiofur Sodium
5-Thia-1-azacyclo[4.2.2]decalin-2(1H)-one (2S)-2-[[2-carboxy-3-thiazolyl](methoxyimino)-acetyl]-amino-[[2-[(2-furanylcarbonyl)thio]methyl]-8-oxo-monooxazolidin-4-one

NAXCEL Sterile Powder Contains the sodium salt of ceftiofur which is a broad spectrum cephalosporin antibiotic active against gram-positive and gram-negative bacteria including β-lactamase-producing strains. Like other cephalosporins, ceftiofur is bactericidal in vitro, resulting from inhibition of wall synthesis.

Each mL of the reconstituted drug contains ceftiofur sodium equivalent to 50 mg ceftiofur. The pH was adjusted with sodium hydroxide and monobasic potassium phosphate.

Table 1. Cellfizer MIC Values of Bacterial Isolates from Clinical Field Studies in the USA and Canada

<table>
<thead>
<tr>
<th>Animal</th>
<th>Organism</th>
<th>Number Tested</th>
<th>Number Tested</th>
<th>MIC Range (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swine</td>
<td>Mannheimia haemolytica</td>
<td>114</td>
<td>114</td>
<td>≤0.06-0.25</td>
</tr>
<tr>
<td></td>
<td>Pasteurella multocida</td>
<td>248</td>
<td>248</td>
<td>≤0.06-0.5</td>
</tr>
<tr>
<td></td>
<td>Mannheimia haemolytica</td>
<td>124</td>
<td>124</td>
<td>≤0.06-0.5</td>
</tr>
<tr>
<td></td>
<td>Pasteurella multocida</td>
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</tbody>
</table>

Table 2. Cellfizer MIC Values of Bacterial Isolates from Diagnostic Subclinics in the USA and Canada

<table>
<thead>
<tr>
<th>Animal</th>
<th>Organism</th>
<th>Number Tested</th>
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<th>MIC Range (µg/mL)</th>
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<tbody>
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</tr>
</tbody>
</table>

* Minimum inhibitory concentration (MIC) for 90% of the isolates.

PRECAUTIONS
Do not use in horses intended for human consumption.

ADVERSE REACTIONS
Adverse effects are uncommon following the use of ceftiofur. In dogs, the following adverse reactions have been reported: vomiting, diarrhea, and anorexia.

REFERENCES

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the organism may be successfully treated if the infection is in a body site where drug is physically concentrated. A report of “Resistant” indicates that the achievable drug concentrations are unlikely to be inhibited and other therapy should be selected.

Based on the pharmacokinetic studies of cephalothin in horses after a single intramuscular injection of 2.7 mg cephalothin equivalents/3 (to 5 mg cephalothin equivalents/1.1 to 2 mg cephalothin equivalents/2) mg/kg BW, clinical effectiveness data and MIC data, the following breakpoint is recommended by CLSI.

### Zone Diameter (mm) MIC (mg/L) Interpretation
- 10 ≤ 2 (S) Susceptible
- 18-20 4.0 (I) Intermediate
- 30 ≥ 8 (R) Resistant

A report of “Susceptible” indicates that the pathogen is likely to be inhibited by generally achievable blood levels. A report of “Intermediate” is a technical buffer zone and isolates falling into this category should be retested. Alternatively, the organism may be successfully treated if the infection is in a body site where drug is physically concentrated. A report of “Resistant” indicates that the achievable drug concentrations are unlikely to be inhibited and other therapy should be selected.

The susceptible only category is used for populations of organisms (usually see species) for which regression analysis (disk vs. MIC) cannot be performed. These breakpoints will permit detection of strain differences with suspected resistance compared to the original population.

Standardized procedures require the use of laboratory control organisms for both standardized diffusion techniques and standardized dilution techniques. The 36 µg cephalothin standard disc should give the following zone diameter: 12 mm. The cephalothin standard concentration reference powder (or disk) should provide the following MIC values for the reference strain. Cefoxitin standard disks or powder reference standard is appropriate for both cephalothin assays.

**Table 2. Acceptable quality control ranges for cephalothin against Clinical and Laboratory Standards Institute (CLSI) reference strains**

<table>
<thead>
<tr>
<th>Organism Name (ATCC Number)</th>
<th>Zone Diameter* (mm)</th>
<th>MIC Range (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli (25922)</td>
<td>25-31</td>
<td>≤0.25 to 1.0</td>
</tr>
<tr>
<td>Staphylococcus aureus (29213)</td>
<td>—</td>
<td>≤0.25</td>
</tr>
<tr>
<td>Staphylococcus aureus (29213)</td>
<td>—</td>
<td>≤0.25</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa (10149)</td>
<td>—</td>
<td>≤0.25</td>
</tr>
<tr>
<td>Actinobacillus pleuropneumoniae (27055)</td>
<td>34-42</td>
<td>≤0.004-0.015</td>
</tr>
<tr>
<td>Hemophilus influenzae (20282)</td>
<td>36-46</td>
<td>≤0.004-0.006</td>
</tr>
</tbody>
</table>

**All tests performed using a 3µg disk.**

**Quality control ranges are applicable only to tests performed by disk diffusion test using a chocolate Mueller-Hinton agar, incubated in 5-7% CO₂ for 20-24 hours.**

**MIC quality control ranges are applicable only to tests performed by broth microdilution procedures using veterinary tedbactin medium (VXM).**

### ANIMAL SAFETY

Cattle

Results from a five-day tolerance study in normal feeder calves indicated that formulated cephalothin was well tolerated at 25 times (25 mg/bd/lb) the highest recommended dose of 1.0 mg/bd/lb for five consecutive days. Cefoxitin administered intramuscularly had no adverse systemic effects.

In a 15-day safety/toxicity study, five steer and five heifer calves per group were administered cephalothin intramuscularly at the following dose levels: 1, 3, 5 and 10 times the highest recommended dose of 1.0 mg/bd/lb to determine the safety factor. There were no adverse systemic effects indicating that the formulated cephalothin has a wide margin of safety when injected intramuscularly into the feeder calves at 10 times (10 mg/bd/lb) the recommended dose for three times (15 days) the recommended three to five days of therapy. The formulation was shown to be a slight muscle irritant based on results of histopathological evaluation of the injection sites at posttreatment days 1, 3 and 7.

The injection of NAXCEL Sterile Powder at the recommended dose administered SC in the neck of cattle was well tolerated. However, a several square centimeter area of yellow discoloration resulting from the single SC injection persisted in many of the cattle beyond 4 days post-injection. Also, one of the animals developed an abscess at the injection site.

Swine

Results from a five-day tolerance study in normal feeder pigs indicated that formulated cephalothin was well tolerated when administered at 37 mg/kg (more than 25 times the highest recommended daily dosage of 2.7 mg/kg body weight) for five consecutive days. Cefoxitin administered intramuscularly to pigs produced no overt adverse signs of toxicity.

To determine the safety factor and to measure the muscle irritancy potential in swine, a safety/toxicity study was conducted. Five barrows and five gilts were given an intramuscular injection of 10.0 mg/kg (50 mg/mg) of ceftiofur sodium for 3 days to determine the toxicity associated with treatment at these doses. The adverse effects were most severe a few days after dosing was initiated and tended to become less severe toward the end of the 15-day dosing period.

A pivotal tissue residue decline study was conducted in swine. In this study, pigs received 2.27 mg of ceftiofur per lb body weight (5 mg of ceftiofur per kg body weight) for 4 days followed by 6 days of observation; body weight was determined on days 1, 4, and 7; and selected hematological parameters were evaluated on day 4. No meaningful differences were noted among the treated and control groups of pigs for the parameters evaluated. The histopathological evaluation of all deaths and chicks surviving to termination did not reveal a target organ or tissue of potential toxicity of cephalothin sodium when administered at up to 25 times (25 mg/lb/day) the intended highest use dosage.

Day-Old Chicks

An acute toxicity study of cephalothin in day-old chicks was conducted. A total of 60 male and 60 female chicks were each given single intramuscular injections of 10, 100 and 1,000 mg/kg body weight. Treatment on day 1 was followed by 6 days of observation; body weight was determined on days 1, 4, and 7; and selected hematological parameters were evaluated on day 4. No meaningful differences were noted among the treated and control groups of chicks for the parameters evaluated. The histopathological evaluation of all deaths and chicks surviving to termination did not reveal a target organ or tissue of potential toxicity of cephalothin sodium when administered at up to 23 times (23 mg/kg/day) the intended highest use dosage. These data collectively support a 4-day pre-slaughter withdrawal period in cattle when used according to label directions.

Day-Old Turkey Poults

In an acute toxicity study of cephalothin in day-old turkey poults, a total of 30 male and 30 female poults were each given single intramuscular injections of 10, 100 and 400 mg/kg body weight. Injection on day 1 was followed by 6 days of observation; body weight on days 1, 4, and 7; and selected hematological parameters on day 4. No meaningful differences were noted among the treated groups at 100 mg/kg orfeftiofur and a negative control group for the parameters evaluated. The histopathological evaluation of all deaths and poults surviving to termination did not reveal a target organ or tissue of potential toxicity of cephalothin sodium when administered at up to 100 times (100 mg/kg/day) the intended highest use dosage.

### TISSUE RESIDUE DEPLETION

Cattle

A radiolabeled residue metabolism study established tolerances for cephalothin residues in cattle kidney, liver and muscle. These tolerances of cephalothin residues are 0.4 ppm in kidney, 2.0 ppm in liver, 1.0 ppm in muscle and 0.1 ppm in milk.

A pivotal tissue residue decline study was conducted in cattle. In this study, cattle received an intramuscular injection of 1.0 mg of cephalothin per kg body weight (2.2 mg/kg of cephalothin per kg body weight) for five consecutive days. Cefoxitin residues in tissues were less than the tolerances for cephalothin residues in tissues such as kidney, liver and muscle by 4 days after dosing. These data collectively support a 4-day pre-slaughter withdrawal period in cattle when used according to label directions.

Swine

A radiolabeled residue metabolism study established tolerances for cephalothin residues in swine kidney, liver, and muscle. These tolerances of cephalothin residues are 0.35 ppm in kidney, 3.0 ppm in liver and 0.2 ppm in muscle.

A pivotal tissue residue decline study was conducted in swine. In this study, pigs received 2.27 mg of cephalothin per lb body weight (5 mg of cephalothin per kg body weight) per day for three consecutive days. Cefoxitin residues in tissues were less than the tolerances for cephalothin residues in tissues such as kidney, liver and muscle by 4 days after dosing. Therefore, it is recommended that a 4-day pre-slaughter withdrawal period in swine be used when administered according to label directions.

### STORAGE CONDITIONS

Store unprocessed product at controlled room temperature 20° to 25°C (68° to 77° F). Store processed product either in a refrigerator 2° to 8°C (36° to 46° F) for up to 7 days or at controlled room temperature 20° to 25°C (68° to 77° F) for up to 12 hours.

Protect from light. Color of the cake may vary from off-white to a tan color. Color does not affect efficacy.

### ONE-TIME SALVAGE PROCEDURE FOR RECONSTITUTED PRODUCT

At the end of the 7-day refrigeration or 12-hour room temperature storage period following reconstitution, any remaining reconstituted powder may be frozen up to 8 weeks without loss in potency or other chemical properties. This is a one-time only salvage procedure for the remaining product. To use this salvaged product at any time during the 8-week storage period, hold the vial under warm running water, gently swirling the container to accelerate thawing, or allow the freeze-thawed material to come to room temperature. Rapid freezing or thawing may result in vial breakage. Any product not used immediately should be discarded.

### HOW SUPPLIED

NAXCEL Sterile Powder is available in the following package sizes:

- 1 gram vial
- 4 gram vial


2. NADA # 140-338, Approved by FDA

Distributed by: Zoetis Inc.
Kalamazoo, MI 49007

Revised: January 2014

30146300A&P
In horses, intravenous dosages of butorphanol ranging from 0.05 to 0.4 mg/kg were shown to be effective in alleviating visceral and superficial pain for at least 4 hours, as illustrated in the following figure:

**Analgesic Effects of Butorphanol Given at Various Dosages in Horses with Abdominal Pain**

<table>
<thead>
<tr>
<th>Dosage (mg/kg)</th>
<th>Pain Threshold (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>100</td>
</tr>
<tr>
<td>0.2</td>
<td>50</td>
</tr>
<tr>
<td>0.4</td>
<td>0</td>
</tr>
</tbody>
</table>

*A pain threshold in butorphanol-treated colicky horses relative to placebo controls.

A definite dosage-response relationship was detected in that butorphanol dosage of 0.1 mg/kg was more effective than 0.05 mg/kg but not different from 0.2 mg/kg in alleviating deep abdominal pain.

**Acute Equine Studies**

Rapid intravenous administration of butorphanol at a dosage of 2 mg/kg (20 times the recommended dosage) to a previously unmedicated horse resulted in a brief episode of inability to stand, muscle fasciculation, a convulsive seizure of 6 seconds duration and recovery within three minutes. The same dose administered after 10 successive daily 1 mg/kg dosages of butorphanol resulted only in transient sedative effects. During the 10-day course of administration at 1 mg/kg (10 times the recommended use level) in two horses, the only detectable drug effects were transient behavioral changes typical of narcotic agonist activity. These included muscle fasciculation about the head and neck, dysphoria, lateral nystagmus, ataxia and salivation.

Repeated administration of butorphanol at 1 mg/kg (10 times the recommended dose) every four hours for 48 hours caused constipation in one of two horses.

**Subacute Equine Studies**

Horses were found to tolerate butorphanol given intravenously at dosages of 0.1, 0.3 and 0.5 mg/kg every 4 hours for 48 hours followed by once daily injections for a total of 21 days. The only detectable drug effects were slight transient ataxia observed occasionally in the high dose group. No clinical, laboratory, or gross or histopathologic evidence of any butorphanol-related toxicity was encountered in the horses.

**INDICATIONS**

TORBUGESIC (butorphanol tartrate) is indicated for the relief of pain associated with colic in adult horses and yearlings. Clinical studies in the horse have shown that TORBUGESIC alleviates abdominal pain associated with torsion, impaction, intussusception, spasmodic and tympanic colic and postpartum pain.

**WARNINGS**

DO NOT USE IN HORSES INTENDED FOR HUMAN CONSUMPTION. NOT FOR HUMAN USE.

**CAUTION**

TORBUGESIC, a potent analgesic, should be used with caution with other sedative or analgesic drugs as these are likely to produce additive effects. There are no well-controlled studies using butorphanol in breeding horses, weanlings and foals. Therefore, the drug should not be used in these groups.

**ADVERSE REACTIONS**

In clinical trials in horses, the most commonly observed side effect was slight ataxia which lasted 3 to 10 minutes.

Marked ataxia was reported in 1.5% of the 327 horses treated. Mild sedation was reported in 9% of the horses.

**DOSEAGE**

The recommended dosage in the horse is 0.1 mg of butorphanol per kilogram of body weight (0.05 mg/lb) by intravenous injection. This is equivalent to 5 mL of TORBUGESIC for each 1000 lbs. of body weight. The dose may be repeated within 3 to 4 hours but treatment should not exceed 48 hours.

Pre-clinical model studies and clinical field trials in horses demonstrate that the analgesic effects of TORBUGESIC are seen within 15 minutes following injection and persist for about 4 hours.

**HOW SUPPLIED**

50 mL vials TORBUGESIC (butorphanol tartrate) Veterinary Injection, 10 mg base activity per mL.

10 mL vials TORBUGESIC (butorphanol tartrate) Veterinary Injection, 10 mg base activity per mL.

Store at controlled room temperature 20°–25°C (68°–77°F) with excursions between 15°–30°C (59°–86°F).

**REFERENCES**

REFERENCES:


8 Data on file, MDI sales data for FLUVAC INNOVATOR® as of 12/31/15, Zoetis Inc.

9 Data on file, Study Report Nos. 10OREQBIO-01, 14OREQBIO-1 and 15REQGBIO-02, Zoetis Inc.


FRONT COVER: Zoetis employee Rachel Helmbold, photo courtesy of Hoof Print Images Photography.

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