

# AnaSed<sup>®</sup>

## INJECTION

Xylazine Sterile Solution 100 mg/mL

### Advantages

- Highest quality with predictable results
- Horses become relaxed yet mobile
- Ideal for diagnostic and minor surgical procedures
- Excellent preanesthetic
- Economical for routine use

All LLOYD Laboratories products are research proven and approved by FDA.



## Analgesic and sedative for use in horses and Cervidae

NADA # 139-236, Approved by FDA

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

Supplied in 50 mL multiple-dose vials List No. 4821



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# AnaSed® INJECTION

(Xylazine)

100 mg/mL Injectable

Sedative and Analgesic for Use in Horses and Cervidae (Fallow Deer, Mule Deer, Sika Deer, White-Tailed Deer and Elk)

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

Do not use in Cervidae less than 15 days before or during the hunting season.

**DESCRIPTION:** AnaSed® is supplied in 50 mL multiple-dose vials as a sterile solution.

**EACH ML CONTAINS:** Xylazine hydrochloride equivalent to 100 mg of base activity, methylparaben 0.9 mg, propylparaben 0.1 mg, sodium citrate dihydrate 5.0 mg and water for injection. pH adjusted with citric acid and sodium citrate.

Protect from heat. Do not store over 30° C (86° F).

**PHARMACOLOGY:** Xylazine, a non-narcotic compound, is a sedative and analgesic as well as a muscle relaxant. Its sedative and analgesic activity is related to central nervous system depression. Its muscle-relaxant effect is based on inhibition of the intraneural transmission of impulses in the central nervous system. The principal pharmacological activities develop within 10 to 15 minutes after intramuscular injection in horses and Cervidae, and within 3 to 5 minutes following intravenous administration in horses.

A sleeplike state, the depth of which is dose-dependent, is usually maintained for 1 to 2 hours, while analgesia lasts from 15 to 30 minutes. The centrally acting muscle-relaxant effect causes relaxation of the skeletal musculature complementing sedation and analgesia.

In horses and Cervidae under the influence of xylazine, the respiratory rate is reduced as in natural sleep. Following treatment with xylazine, the heart rate is decreased and a transient change in the conductivity of the cardiac muscle may occur, as evidenced by a partial atrioventricular block. This resembles the atrioventricular block often observed in normal horses.<sup>1,2,3,4</sup> Although a partial A-V block may occasionally occur following intramuscular injection of xylazine, the incidence is less than when it is administered intravenously. Intravenous administration of xylazine causes a transient rise in blood pressure, followed by a slight decrease.

Xylazine has no effect on blood clotting time or other hematologic parameters.

**INDICATIONS:** Xylazine should be used in horses and Cervidae (Fallow Deer, Mule Deer, Sika Deer, White-Tailed Deer and Elk) when it is desirable to produce a state of sedation accompanied by a shorter period of analgesia. **Horses:** Xylazine has been used successfully as follows:

1. Diagnostic procedures ---- oral and ophthalmic examinations, abdominal palpation, rectal palpation, vaginal examination, catheterization of the bladder and radiographic examinations.
2. Orthopedic procedures, such as application of casting materials and splints.
3. Dental procedures.
4. Minor surgical procedures of short duration such as debridement, removal of cutaneous neoplasms and suturing of lacerations.

5. To calm and facilitate handling of fractious animals.

Major surgical procedures:

- a. When used as a preanesthetic to general anesthesia.
- b. When used in conjunction with local anesthetics.

**Cervidae:** Xylazine may be used for the following:

1. To calm and facilitate handling of fractious animals.
2. Diagnostic procedures.
3. Minor surgical procedures.
4. Therapeutic medication for sedation and relief of pain following injury or surgery.
5. As a preanesthetic to local anesthesia. AnaSed at the recommended dosages can be used in conjunction with local anesthetics, such as procaine or lidocaine.

## DOSAGE AND ADMINISTRATION:

1. Dosage

### Horses:

Intravenous --- 0.5 mL/100 lb body weight (0.5 mg/lb or 1.1 mg/kg).  
Intramuscular --- 1.0 mL/100 lb body weight (1 mg/lb or 2.2 mg/kg).

### Cervidae:

Administer intramuscularly, by either hand syringe or syringe dart, in the heavy muscles of the croup or shoulder.

Fallow Deer (*Dama dama*) --- 2.0 to 4.0 mL/100 lbs body weight (2.0 to 4.0 mg/lb or 4.4 to 8.8 mg/kg).

Mule Deer (*Odocoileus hemionus*) --- 1.0 to 2.0 mL/100 lbs body weight (1.0 to 2.0 mg/lb or 2.2 to 4.4 mg/kg).

Sika Deer (*Cervus nippon*) --- 1.0 to 2.0 mL/100 lbs body weight (1.0 to 2.0 mg/lb or 2.2 to 4.4 mg/kg).

White-Tailed Deer (*Odocoileus virginianus*) --- 1.0 to 2.0 mL/100 lbs body weight (1.0 to 2.0 mg/lb or 2.2 to 4.4 mg/kg).

Elk (*Cervus canadensis*) --- 0.25 to 0.5 mL/100 lbs body weight (0.25 to 0.5 mg/lb or 0.55 to 1.1 mg/kg).

Following injection of xylazine, the animal should be allowed to rest quietly until the full effect has been reached.

These dosages produce sedation which is usually maintained for 1 to 2 hours, and analgesia which lasts for 15 to 30 minutes.

2. Preanesthetic to Local Anesthesia Xylazine at the recommended dosages can be used in conjunction with local anesthetics, such as procaine or lidocaine.
3. Preanesthetic to General Anesthesia Xylazine at the recommended dosage rates produces an additive effect to central nervous system depressants such as pentobarbital sodium, thiopental sodium and thiamylal sodium. Therefore, the dosage of such compounds should be reduced and administered to the desired effect. In general, only 1/3 to 1/2 of the calculated dosage of the barbiturates will be needed to produce a surgical plane of anesthesia. Post-anesthetic or emergence excitement has not been observed in animals preanesthetized with xylazine.

Xylazine has been used successfully as a preanesthetic agent for pentobarbital sodium, thiopental sodium, thiamylal sodium, nitrous oxide, ether, halothane, glyceryl guaiacolate and methoxyflurane anesthesia.

**SIDE EFFECTS:** Xylazine in horses and Cervidae used at recommended dosage levels may occasionally cause slight muscle tremors, bradycardia with partial A-V heart block

and a reduced respiratory rate. Movement in response to sharp auditory stimuli may be observed. In horses, sweating, rarely profuse, has been reported following administration. In Cervidae, salivation, various vocalizations (bellowing, bleating, groaning, grunting, snoring) on expiration, audible grinding of molar teeth, protruding tongue and elevated temperatures have also been noted in some cases.

**PRECAUTIONS:** Careful consideration should be given before administering to horses and Cervidae with significantly depressed respiration, severe pathologic heart disease, advanced liver or kidney disease, severe endotoxic or traumatic shock and stress conditions such as extreme heat, cold, high altitude or fatigue.

Do not use xylazine in conjunction with tranquilizers.

Analgesic effect is variable, and depth should be carefully assayed prior to surgical/clinical procedures. Variability of analgesia occurs most frequently at the distal extremities of horses and Cervidae. **In spite of sedation, the practitioner and handlers should proceed with caution since defense reactions may not be diminished.**

## Intracarotid Arterial Injection Should Be Avoided.

As with many compounds, including tranquilizers, immediate violent seizures followed by collapse may result from inadvertent administration into the carotid artery. Although the reaction with xylazine is usually transient and recovery may be rapid and complete, special care should be taken to assure that the needle is in the jugular vein rather than the carotid artery.

**Horses:** Since an additive effect results from the use of xylazine and the barbiturate compounds, it should be used with caution with these central nervous system depressants. Products known to produce respiratory depression or apnea, such as thiamylal sodium should be given at a reduced dosage and when injected intravenously, should be administered slowly. When intravenous administration is desired, avoid perivascular injection in order to achieve the desired effect. Studies have shown negligible evidence of tissue irritation, however, following perivascular injection of xylazine.

Bradycardia and an arrhythmia in the form of incomplete atrioventricular block have been reported following xylazine administration. Although clinically the importance of this effect is questioned,<sup>1,2,3,4</sup> a standard dose of atropine given prior to or following xylazine will greatly decrease the incidence.

Sedation for transport is most successful if actual transportation is begun after the full effect of the drug has been reached and the animal's stability is maintained while standing. In addition, it should be noted that animals under the influence of xylazine can be aroused by noise or other stimuli and this may increase the risk of injury.

**Cervidae:** It is preferable to administer AnaSed® to fasted Cervidae. As in all ruminants a safeguard against aspiration of food material into the lungs and/or bloat during deep sedation is necessary. Care should be taken to administer AnaSed® in the heavy muscles of the croup or shoulder. Injections given subcutaneously, intraperitoneally or into fat deposits will give unpredictable results.

Cervidae should not be disturbed during induction or until the full effect of the drug has been reached which is usually 10 to 15 minutes following injection.

The usual time to initial effect of the drug is 2 to 5 minutes. The administrator of the drug should be fully cognizant of this interval prior to administration of drug to free-ranging deer or elk, especially at night or in heavily wooded areas.

If the animal has been underdosed (faulty injection or miscalculation on weight) it is advisable to wait one hour before administering a second dose.

Adequate ventilation -- especially in cages or crates is mandatory; keep head and neck in position to insure patent air passage and to prevent aspiration of stomach contents.

During sedation Cervidae should be prevented from assuming lateral recumbency. A sternal recumbent position is desirable.

While under the effects of xylazine, the animal should be protected from an extremely hot or cold environment.

Efforts should be made to prevent patient from rising until almost complete recovery is attained.

The transportation of Cervidae given AnaSed® should be carefully monitored to prevent excessive struggling, injury or death. Hyperthermic reactions may occur, especially if the subject is in a highly excited psychic state when the drug is administered. Hosing the head and entire body with cold water has usually proven to be an effective deterrent.

Data are presently inadequate to recommend AnaSed®'s use in pregnant Cervidae. Avoid use during breeding season.

Cervidae should be observed closely until all of the sedative effects of AnaSed® are gone.

Care should be taken at all times when administering AnaSed® to Cervidae. This is due to the method of administration (usually darting), the difficulty in estimating body weights and the accepted theory that wild animals are more unpredictable in their response to sedatives and analgesics than the domesticated species.

**SAFETY:** Xylazine has been tested in horses at 5 times the recommended dose, and at doses above the recommended range in Cervidae. However, doses of this magnitude may produce convulsions and long periods of sedation in horses and muscle tremors and long periods of sedation in Cervidae.

**WARNING:** This drug should not be administered to domestic food-producing animals.

Not for use in horses intended for food.

Avoid accidental administration to humans. Should such exposure occur, notify a physician immediately. Artificial respiration may be indicated.

In Cervidae, occasional capture-associated deaths occur. Clinical trials reveal a mortality rate of approximately 3.5% attendant with the administration of xylazine.

## REFERENCES:

1. Detweiler, D. K.: The Diagnosis and Significance of Cardiac Arrhythmias in Progress in Equine Practice. Edited by E. J. Catcott and J. F. Smithcors. American Veterinary Publications, Inc., Santa Barbara, California and Wheaton, Illinois, (1966), 280-281.
2. Glazier, D. B.: Atrioventricular Heart Block. Irish Vet. J., Vol. 12 (1958): 194-198.
3. Holmes, J. R., Alps, B. J.: Observations on Partial Atrioventricular Heart Block in the Horse. Can. Vet. J., Vol. 7, No. 12, (1966), 280-290.
4. Smetzer, D. L., Smith, C. R., Senta, T.: Second Degree Atrioventricular Block in the Horse. Am. J. Vet. Res., Vol. 30, No. 6, (1969), 933-946.

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