

Date of Approval: FEB 16 2005

FREEDOM OF INFORMATION SUMMARY
ORIGINAL ABBREVIATED NEW ANIMAL DRUG APPLICATION

ANADA 200-344

Tiamulin Soluble Antibiotic
(tiamulin)

Water Soluble Powder

Swine

For oral use in the treatment of swine dysentery and pneumonia

Sponsored by:

Phoenix Scientific, Inc.

2005-200-344

FOIS 1

FREEDOM OF INFORMATION SUMMARY

1. GENERAL INFORMATION:

- a. File Number: ANADA 200-344
- b. Sponsor: Phoenix Scientific, Inc.
3915 South 48th St. Terrace
St. Joseph, MO 64503

Drug Labeler Code: 059130
- c. Established Names: Tiamulin hydrogen fumarate
- d. Proprietary Name: Tiamulin Soluble Antibiotic
- e. Dosage Form: Soluble powder
- f. How Supplied: 2.28 oz (64.6 g) and 6.84 oz (193.8 g) foil packets
- g. How Dispensed: OTC
- h. Amount of Active Ingredients: 45% w/w tiamulin
- i. Route of Administration: Oral
- j. Species/Class: Swine/Weighing less than 250 pounds.
- k. Recommended Dosage: Administered in the drinking water for five consecutive days for the treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin at a dose level of 3.5 mg tiamulin per pound of body weight daily and for treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin when given a 10.5 mg tiamulin per pound of body weight daily.
- l. Pharmacological Category: Antibiotic
- m. Indications: For the treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin and swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin.
- n. Pioneer Product: DENAGARD Soluble Antibiotic; tiamulin; NADA 134-644; Boehringer Ingelheim Vetmedica, Inc.

2. TARGET ANIMAL SAFETY AND DRUG EFFECTIVENESS:

Under the provisions of the Federal Food, Drug, and Cosmetic Act, as amended by the Generic Animal Drug and Patent Term Restoration Act (GADPTRA) of 1988, an Abbreviated New Animal Drug Application (ANADA) may be submitted for a generic version of an approved new animal drug (pioneer product). New target animal safety and effectiveness data and human food safety data (other than tissue residue data) are not required for approval of an ANADA.

Ordinarily, the ANADA sponsor shows the generic product is bioequivalent to the pioneer, which has been shown to be safe and effective. If bioequivalence is demonstrated through a clinical endpoint study, then a tissue residue study to establish the withdrawal time for the generic product should also be conducted. For certain dosage forms, the agency will grant a waiver from the requirement of an *in vivo* bioequivalence study. (55 FR 24645, June 18, 1990; Fifth GADPTRA Policy Letter; Bioequivalence Guidance, revised October 9, 2002).

Based on the formulation characteristics of the generic product Phoenix Scientific, Inc. was granted a waiver from the requirement of an *in vivo* bioequivalence study for Tiamulin (tiamulin) Soluble Antibiotic. The generic product is administered as an oral solution, contains similar active ingredients in the same concentration and dosage form as the pioneer product, and contains no inactive ingredients that may significantly affect the absorption of the active ingredient. The pioneer product DENAGARD (tiamulin) Soluble Antibiotic, the subject of Boehringer Ingelheim Vetmedica, Inc., NADA 134-644, was approved on September 15, 1983.

3. HUMAN SAFETY:

- **Tolerance for Residues:**

The tolerances established for the pioneer product apply to the generic product. A tolerance of 0.6 ppm is established for 8-*alpha*-hydroxymutilin (marker compound) in liver (target tissue) of swine under 21 CFR 556.738.

- **Withdrawal Times:**

Because a waiver of the *in vivo* bioequivalence study was granted, the withdrawal times are those previously assigned to the pioneer product.

The withdrawal times established for tiamulin soluble powder under 21 CFR 520.2455 are: 1) 3 days before slaughter when given to swine at a dose of 3.5 mg of tiamulin per pound of body weight for 5 days, and 2) 7 days before slaughter when given to swine at a dose of 10.5 mg per pound of body weight for 5 days.

- **Regulatory Method for Residues:**

The determinative analytical method (GC) and the confirmatory analytical method (GC-MS) for determining 8-*alpha*-hydroxymutilin in swine liver are on file at the Center for Veterinary Medicine, FDA, 7500 Standish Place, Rockville, MD 20855.

4. **AGENCY CONCLUSIONS:**

This Abbreviated New Animal Drug Application (ANADA) filed under section 512(b)(2) of the Federal Food, Drug, and Cosmetic Act satisfies the requirements of section 512(n) of the act and demonstrates that Tiamulin Soluble Antibiotic, when used under its proposed conditions of use, is safe and effective for its labeled indications.

5. **ATTACHMENTS:**

Facsimile generic labeling and currently approved pioneer labeling are attached as follows:

Generic Labeling for ANADA 200-344:

Tiamulin (tiamulin) Soluble Antibiotic

Packet Label – (Front and Back), 2.28 oz (64.6 g) and 6.84 oz (193.8 g) foil packets;

24 x 2.28 oz container label;

12 x 6.84 oz container label;

Package Insert

Pioneer Labeling for NADA 134-644:

DENAGARD (tiamulin) Soluble Antibiotic

Single Packet Label – 2.28 oz (64.4 grams);

20 packet container label;

Package Insert

(Note: The latest nomenclature for the agent associated with swine dysentery, *Brachyspira hyodysenteriae*, appears on the generic labeling but the former name, *Serpulina hyodysenteriae*, appears on the pioneer labeling. The pioneer product DENAGARD (Tiamulin) Soluble Antibiotic is not currently marketed so its labeling does not reflect up to date nomenclature. Rather than copy older nomenclature, CVM recommends that the generic sponsor use the current terminology for the agent associated with swine dysentery, *Brachyspira hyodysenteriae*.)

NDC 59130-740-63

TIAMULIN Soluble Antibiotic

Active Ingredient:

This packet contains 1.03 oz (29.1 g) tiamulin in an inert carrier.

Treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin.

Treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin.

Warning: Withdraw medicated water 3 days before slaughter after use at 3.5 mg per pound and 7 days before slaughter after use at 10.5 mg per pound.

Keep out of reach of children.

Avoid inhalation and contact with the skin. Direct contact with skin or mucous membranes may cause irritation.

Store in a dry place not above 37°C (100°F)
Read complete package insert.

ANADA 200-344, Approved by FDA

Net Weight:
2.28 oz (64.6 g)

AmTech®
Group, Inc.

Use Directions: TIAMULIN Soluble Antibiotic is designed to be administered in the drinking water of swine. This packet contains 29,100 mg tiamulin soluble powder and is designed especially for convenience of use with medication proportioners. See package insert for additional use directions.

	Swine Dysentery	Actinobacillus Pneumonia
Tiamulin, mg/lb daily	3.5 mg	10.5 mg
Body weight this packet will treat for one day	8,314 lb	2,771 lb
Required treatment duration	5 days	5 days
Amount water per packet*	128 gal	43 gal
Tiamulin per gallon of water	227 mg	677 mg
Packets needed for one gallon of stock solution for medication proportioner set to deliver one ounce per gallon	1	3

*Adjust dilution as needed to get required daily drug dose

**Caution: For use in animals only-
Not for human use.**

Prepare fresh medicated water daily. Use as the only source of drinking water for 5 days. Do not use in swine weighing over 250 pounds.

Contraindication: Swine being treated with Tiamulin should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

TAKE TIME



OBSERVE LABEL
DIRECTIONS

Manufactured by
Phoenix Scientific, Inc.
St. Joseph, MO 64503

AmTech® is a registered trademark
of Phoenix Scientific, Inc.

Iss. 1-05

800517



Lot No.

Exp. Date

NDC 59130-740-65

TIAMULIN

Soluble Antibiotic

Active Ingredient:

This packet contains 3.09 oz (87.3 g) tiamulin in an inert carrier.

Treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin.

Treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin.

Warning: Withdraw medicated water 3 days before slaughter after use at 3.5 mg per pound and 7 days before slaughter after use at 10.5 mg per pound.

Keep out of reach of children.

Avoid inhalation and contact with the skin. Direct contact with skin or mucous membranes may cause irritation.

**Store in a dry place not above 37°C (100°F)
Read complete package insert.**

ANADA 200-344, Approved by FDA

**Net Weight:
6.84 oz (193.8 g)**

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Use Directions: TIAMULIN Soluble Antibiotic is designed to be administered in the drinking water of swine. This packet contains 87,300 mg tiamulin soluble powder and is designed especially for convenience of use with medication proportioners. See package insert for additional use directions.

	Swine Dysentery	Actinobacillus Pneumonia
Tiamulin, mg/lb daily	3.5 mg	10.5 mg
Body weight this packet will treat for one day	24,942 lb	8,313 lb
Required treatment duration	5 days	5 days
Amount water per packet*	384 gal	129 gal
Tiamulin per gallon of water	227 mg	677 mg
Packets needed for one gallon of stock solution for medication proportioner set to deliver one ounce per gallon	1/3	1
*Adjust dilution as needed to get required daily drug dose		

**Caution: For use in animals only-
Not for human use.**

Prepare fresh medicated water daily. Use as the only source of drinking water for 5 days. Do not use in swine weighing over 250 pounds.

Contraindication: Swine being treated with Tiamulin should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

Manufactured by
Phoenix Scientific, Inc.
St. Joseph, MO 64503

TAKE TIME



OBSERVE LABEL
DIRECTIONS

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of Phoenix Scientific, Inc.

Iss. 1-05
800517

Lot No.

Exp. Date



3

NDC 59130-740-63

Use Directions: TIAMULIN Soluble Antibiotic is designed to be administered in the drinking water of swine. Each packet contains 29,100 mg tiamulin soluble powder and is designed especially for convenience of use with medication proportioners. See package insert for additional use directions.

	Swine Dysentery	Actinobacillus Pneumonia
Tiamulin, mg/lb daily	3.5 mg	10.5 mg
Body weight each packet will treat for one day	8,314 lb	2,771 lb
Required treatment duration	5 days	5 days
Amount water per packet*	128 gal	43 gal
Tiamulin per gallon of water	227 mg	677 mg

Packets needed for one gallon of stock solution for medication proportioner set to deliver one ounce per gallon

1 3

*Adjust dilution as needed to get required daily drug dose

**Caution: For use in animals only-
Not for human use.**

Prepare fresh medicated water daily. Use as the only source of drinking water for 5 days. Do not use in swine weighing over 250 pounds.

**Store in a dry place not above
37°C (100°F) Read complete
package insert.**

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TIAMULIN Soluble Antibiotic

Active Ingredient:
Each packet contains 1.03 oz (29.1 g) tiamulin in an inert carrier.

**Treatment of swine dysentery associated with
Brachyspira hyodysenteriae susceptible to tiamulin.**

**Treatment of swine pneumonia due to
Actinobacillus pleuropneumoniae susceptible to tiamulin.**

Warning: Withdraw medicated water 3 days before slaughter after use at 3.5 mg per pound and 7 days before slaughter after use at 10.5 mg per pound.

Contraindication: Swine being treated with Tiamulin should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

TAKE TIME



OBSERVE LABEL
DIRECTIONS

Keep out of reach of children.

Avoid inhalation and contact with the skin. Direct contact with skin or mucous membranes may cause irritation.

Manufactured by
Phoenix Scientific, Inc.
St. Joseph, MO 64503

ANADA 200-344, Approved by FDA

**Net Weight:
24 x 2.28 oz (64.6 g)**

Iss. 1-05

800517



AmTech®
Group, Inc.

Lot No.

Exp. Date

NDC 59130-740-65

Use Directions: TIAMULIN Soluble Antibiotic is designed to be administered in the drinking water of swine. Each packet contains 87,300 mg tiamulin soluble powder and is designed especially for convenience of use with medication proportioners. See package insert for additional use directions.

	Swine Dysentery	Actinobacillus Pneumonia
Tiamulin, mg/lb daily	3.5 mg	10.5 mg
Body weight each packet will treat for one day	24,942 lb	8,313 lb
Required treatment duration	5 days	5 days
Amount water per packet*	384 gal	129 gal
Tiamulin per gallon of water	227 mg	677 mg

Packets needed for one gallon of stock solution for medication proportioner set to deliver one ounce per gallon

1/3 1

*Adjust dilution as needed to get required daily drug dose

Caution: For use in animals only- Not for human use.

Prepare fresh medicated water daily. Use as the only source of drinking water for 5 days. Do not use in swine weighing over 250 pounds.

Store in a dry place not above 37°C (100°F) Read complete package insert.

AmTech® is a registered trademark of Phoenix Scientific, Inc.

TIAMULIN

Soluble Antibiotic

Active Ingredient:
Each packet contains 3.09 oz (87.3 g) tiamulin in an inert carrier.

Treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin.

Treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin.

Warning: Withdraw medicated water 3 days before slaughter after use at 3.5 mg per pound and 7 days before slaughter after use at 10.5 mg per pound.

Contraindication: Swine being treated with Tiamulin should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.



Keep out of reach of children.

Avoid inhalation and contact with the skin. Direct contact with skin or mucous membranes may cause irritation.

Manufactured by
Phoenix Scientific, Inc.
St. Joseph, MO 64503

ANADA 200-344. Approved by FDA

Net Weight:
12 x 6.84 oz (193.8 g)

Iss. 1-05

800517



AmTech®
Group, Inc.

Lot No.

Exp. Date

ANADA 200-344, Approved by FDA

TIAMULIN Soluble Antibiotic

Description

TIAMULIN Soluble Antibiotic is a fine, white powder which contains 45% w/w tiamulin. The active ingredient tiamulin chemically is 14-desoxy-14-[[2-diethylaminoethyl] mercaptoacetoxy] mutilin hydrogen fumarate, a semi-synthetic diterpene antibiotic. TIAMULIN Soluble Antibiotic is designed to be administered in the drinking water of swine.

Actions

Tiamulin is active against *Brachyspira hyodysenteriae* and *Actinobacillus pleuropneumoniae*. It is readily absorbed from the gut and can be found in the blood within 30 minutes after dosing.

Indications

TIAMULIN, when administered in the drinking water for five consecutive days, is an effective antibiotic for the treatment of swine dysentery associated with *Brachyspira hyodysenteriae* susceptible to tiamulin at a dose level of 3.5 mg tiamulin per pound of body weight daily and for treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin when given at 10.5 mg tiamulin per pound of body weight daily.

Contraindications

Swine being treated with TIAMULIN should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

Warning

Keep out of reach of children. Avoid contact with skin. Direct contact with skin or mucous membranes may cause irritation.

Withdraw medicated water 3 days before slaughter after treatment at 3.5 mg per pound and 7 days before slaughter following treatment at 10.5 mg per pound body weight.

Caution

For use in drinking water of swine only. Prepare fresh medicated water daily. Not for use in swine over 250 pounds body weight. For animal use only - not for use in humans.

Adverse Reactions

Overdoses of TIAMULIN have sometimes produced transitory salivation, vomiting and an apparent calming effect on the pig.

If signs of toxicity occur, discontinue use of medicated water and replace with clean, fresh water.

In rare cases, redness of skin primarily over the ham and underline has been observed during medication. If this occurs, discontinue medication immediately.

Studies to evaluate the safety of the water soluble form of tiamulin in breeding swine have not been done.

Use Directions

The concentration of tiamulin in the drinking water must be adjusted to compensate for variation in water consumption due to weight or size of the pig, environmental temperature and other factors. It is important that pigs receive the proper drug dose, 3.5 mg tiamulin per pound for swine dysentery or 10.5 mg tiamulin per pound for *Actinobacillus pneumoniae* each day for 5 consecutive days.

Table 1

Approximate daily water consumption per pig	
Pig weight, lb	Water intake, gal
20	0.3 - 0.5
45	0.4 - 1.1
75	0.7 - 1.5
125	1.0 - 2.0
180	1.2 - 3.0

Note:

1. Prepare fresh medicated drinking water every day for the 5 day treatment period.
2. Water medicated with Tiamulin Soluble Antibiotic should be the only source of drinking water during the treatment period.

Directions for preparing Tiamulin Soluble Antibiotic medicated solutions

1. Pour contents of the Tiamulin Soluble Antibiotic packet(s) into a suitable clean container.
2. Add approximately 4 quarts of water.
3. Stir thoroughly until the powder is completely dissolved.
4. Add this solution to the quantity of drinking water needed and mix well.

Table 2

Packet size: 2.28 oz / Net Tiamulin content 29,100 mg		
Disease to be treated	Swine Dysentery	Actinobacillus Pneumonia
Daily Tiamulin dose required per pound	3.5 mg	10.5 mg
Required treatment duration	5 days	5 days
Pig body weight packet will treat for one day	3,314 lb	2,771 lb
Number of pigs packet will treat for one day		
Pig wt., lb.		
20	415	138
45	184	62
75	111	37
125	67	22
180	46	15
Suggested final dilution of contents of one packet*	128 gal	43 gal
Tiamulin concentration per gallon at suggested final dilution*	227 mg	677 mg
Packet size: 6.84 oz / Net Tiamulin content 87,300 mg		
Disease to be treated	Swine Dysentery	Actinobacillus Pneumonia
Daily Tiamulin dose required per pound	3.5 mg	10.5 mg
Required treatment duration	5 days	5 days
Pig body weight packet will treat for one day	24,942 lb	8,313 lb
Number of pigs packet will treat for one day		
Pig wt., lb.		
20	1245	414
45	552	186
75	333	111
125	201	66
180	136	45
Suggested final dilution of contents of one packet*	384 gal	129 gal
Tiamulin concentration per gallon at suggested final dilution*	227 mg	677 mg

*Note: Increase or decrease dilution rate as required to obtain proper daily drug dose.

Directions for using Tiamulin Soluble Antibiotic in medicated proportioners

2.28 oz packet

The contents of each packet dissolved in one gallon of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon will deliver 227 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of swine dysentery. Use three 2.28 oz packets dissolved in one gallon of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon to deliver 682 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of *Actinobacillus pneumoniae*.

6.84 oz packet

The contents of each packet dissolved in three gallons of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon will deliver 227 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of swine dysentery. Use one 6.84 oz packet dissolved in one gallon of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon to deliver 682 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of *Actinobacillus pneumoniae*.

The concentration of tiamulin in the stock solution and in the drinking water delivered must be adjusted to compensate for variation in water consumption by pigs due to body weight, environmental and other factors. It is important that the pigs receive the proper drug dose of 3.5 mg per pound of body weight daily for five days for treatment of swine dysentery and 10.5 mg per pound of body weight daily for 5 days for treatment of *Actinobacillus pneumoniae*.

Attention

If no response to treatment is obtained within 5 days, re-establish the diagnosis. Failure of response may be related to the presence of non-susceptible organisms or other complicating disease conditions. Because of the tendency for the disease to recur on premises with a history of swine dysentery or *Actinobacillus pneumoniae*, a control program should be implemented after treatment. Drugs are not substitutes for proper sanitary measures or good management, but should be used in conjunction with such practices.

How supplied

Package Size: Net Weight	Active Ingredient
2.28 oz (64.6 g) packet, 24 packets per container	1.03 oz (29.1 g) Tiamulin
6.84 oz (193.8 g) packet, 12 packets per container	3.09 oz (87.3 g) Tiamulin

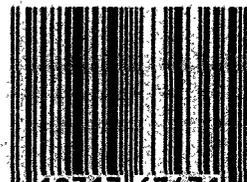
Store in a dry place not above 37°C (100°F).

Observe expiration dates.

Contraindication: Swine being treated with DENAGARD (tiamulin) should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

DENAGARD™ is a Trademark of Boehringer Ingelheim Vetmedica, Inc. U.S. Patent No. 4,278,674 634306F-00-9802 Code 634311

Boehringer Ingelheim Vetmedica, Inc. St. Joseph, MO 64506 U.S.A.



Lot No.:

Exp. Date:

DENAGARD™ (tiamulin)

Soluble Antibiotic

Active Ingredient:

This packet contains 1.03 oz (29.1 g) tiamulin in an inert carrier.

NADA 134-644, Approved by FDA

Net Weight: 2.28 oz (64.6 g)

Treatment of swine dysentery associated with *Serpulina hyodysenteriae* susceptible to tiamulin.

Treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin.

Warning: Withdraw medicated water 3 days before slaughter after use at 3.5 mg per pound and 7 days before slaughter after use at 10.5 mg per pound.

Keep out of reach of children.

Avoid inhalation and contact with the skin. Direct contact with skin or mucous membranes may cause irritation.

Store in a dry place not above 37°C (100°F)

Read complete package insert.



Boehringer Ingelheim
NOBL

Use Directions: This packet contains 29,100 mg tiamulin and is designed especially for convenience of use with medication proportioners. See package insert for use in medicated solutions.

	Swine Dysentery	Actinobacillus Pneumonia
Tiamulin, mg/lb daily	3.5 mg	10.5 mg
Body weight this packet will treat for one day	8,314 lb	2,771 lb
Required treatment duration	5 days	5 days
Amount water per packet*	128 gal	43 gal
Tiamulin per gallon of water	227 mg	677 mg
Packets needed for one gallon of stock solution for medication proportioner set to deliver one ounce per gallon	1	3

*Adjust dilution as needed to get required daily drug dose

Caution: For use in animals only - Not for human use.

Prepare fresh medicated water daily. Use as the only source of drinking water for 5 days. Do not use in swine weighing over 250 pounds.

DENAGARD™
(tiamulin)

Soluble Antibiotic
NADA 134-644, Approved by FDA
20 Packets,
2.28 oz (64.6 g) each

Active Ingredient:

Each packet contains 1.03 oz (29.1 g)
tiamulin in an inert carrier.

Caution:

For use in the drinking water of swine only.

Store in a dry place not above 37°C (100°F)

DENAGARD™ is a Trademark of Boehringer
Ingelheim Vetmedica, Inc.
634307L-00-9802

Boehringer Ingelheim
Vetmedica, Inc.
St. Joseph, MO 64506 U.S.A.



Boehringer Ingelheim
NOBL

Lot No.:

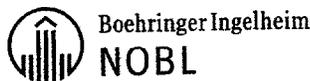
Exp. Date:

NADA 134-644, Approved by FDA

DENAGARD™

(tiamulin)

Soluble Antibiotic



Contraindications

Swine being treated with DENAGARD (tiamulin) should not have access to feeds containing polyether ionophores (e.g., monensin, lasalocid, narasin, salinomycin and semduramicin) as adverse reactions may occur.

Warning

Keep out of reach of children. Avoid contact with skin. Direct contact with skin or mucous membranes may cause irritation.

Withdraw medicated water 3 days before slaughter after treatment at 3.5 mg per pound and 7 days before slaughter following treatment at 10.5 mg per pound body weight.

Caution

For use in drinking water of swine only. Prepare fresh medicated water daily. Not for use in swine over 250 pounds body weight. For animal use only – not for use in humans.

Adverse Reactions

Overdoses of DENAGARD have sometimes produced transitory salivation, vomiting and an apparent calming effect on the pig.

If signs of toxicity occur, discontinue use of medicated water and replace with clean, fresh water.

Description

DENAGARD (tiamulin) Soluble Antibiotic is a fine, white granular powder which contains 45% w/w tiamulin. The active ingredient tiamulin chemically is 14-desoxy-14-[(2-diethylaminoethyl) mercaptoacetoxy] mutilin hydrogen fumarate, a semi-synthetic diterpene antibiotic. DENAGARD Soluble Antibiotic is designed to be administered in the drinking water of swine.

Actions

Tiamulin is active against *Serpulina hyodysenteriae* and *Actinobacillus pleuropneumoniae*. It is readily absorbed from the gut and can be found in the blood within 30 minutes after dosing.

Indications

DENAGARD (tiamulin), when administered in the drinking water for five consecutive days, is an effective antibiotic for the treatment of swine dysentery associated with *Serpulina hyodysenteriae* susceptible to tiamulin at a dose level of 3.5 mg tiamulin per pound of body weight daily and for treatment of swine pneumonia due to *Actinobacillus pleuropneumoniae* susceptible to tiamulin when given at 10.5 mg tiamulin per pound of body weight daily.

In rare cases, redness of skin primarily over the ham and underline has been observed during medication. If this occurs, discontinue medication immediately.

Studies to evaluate the safety of the water soluble form of tiamulin in breeding swine have not been done.

Use Directions

The concentration of tiamulin in the drinking water must be adjusted to compensate for variation in water consumption due to weight or size of the pig, environmental temperature and other factors. It is important that pigs receive the proper drug dose, 3.5 mg tiamulin per pound for swine dysentery or 10.5 mg tiamulin per pound for *Actinobacillus pneumoniae*, each day for 5 consecutive days.

Directions for using DENAGARD in medicated proportioners

2.28 oz packet

The contents of this packet dissolved in one gallon of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon will deliver 227 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of swine dysentery. Use three 2.28 ounce packets dissolved in one gallon of water and this stock solution metered in a medication proportioner at one fluid ounce per gallon to deliver 682 mg of tiamulin per gallon to a total of 128 gallons of drinking water for treatment of *Actinobacillus pneumonia*. The concentration of tiamulin in the stock solution and in the drinking water delivered must be adjusted to compensate for variation in water consumption by pigs due to body weight, environmental and other factors. It is important that the pigs receive the proper drug dose of 3.5 mg per pound of body weight daily for five days for treatment of swine dysentery and 10.5 mg per pound of body weight daily for 5 days for treatment of *Actinobacillus pneumonia*.

Attention

If no response to treatment is obtained within 5 days, re-establish the diagnosis. Failure of response may be related to the presence of non-susceptible organisms or other complicating disease conditions. Because of the tendency

for the disease to recur on premises with a history of swine dysentery or with *Actinobacillus pneumonia*, a control program should be implemented after treatment. Drugs are not substitutes for proper sanitary measures or good management, but should be used in conjunction with such practices.

How supplied

Package Size:	Active Ingredient
Net Weight	
2.28 oz (64.6 g) Packet	1.03 oz (29.1 g) Tiamulin
20 Packets per box	

**Store in a dry place not above 37 °C (100 °F).
Observe expiration dates.**

DENAGARD™ is a Trademark of
Boehringer Ingelheim Vetmedica, Inc.
U.S. Patent No. 4,278,674
634305L-00-9802
Code 634311
Boehringer Ingelheim Vetmedica, Inc.
St. Joseph, MO 64506 U.S.A.



Table 1
Approximate daily water consumption per pig

Pig weight, lb	Water intake, gal
20	0.3-0.5
45	0.4-1.1
75	0.7-1.5
125	1.0-2.0
180	1.2-3.0

Note:

1. Prepare fresh medicated drinking water every day for the 5 day treatment period.
2. Water medicated with DENAGARD should be the only source of drinking water during the treatment period.

Directions for preparing DENAGARD medicated solutions

1. Pour the contents of the DENAGARD packet(s) into a suitable clean container.
2. Add approximately 4 quarts of water.
3. Stir thoroughly until the powder is completely dissolved.
4. Add this solution to the quantity of drinking water needed and mix well.

Table 2

Packet size: 2.28 oz / Net tiamulin content: 29,100 mg

Disease to be treated	Swine Dysentery	Actinobacillus Pneumonia
Daily tiamulin dose required per pound	3.5 mg	10.5 mg
Required treatment duration	5 days	5 days
Pig body weight packet will treat for one day	8,314 lb	2,771 lb
Number of pigs packet will treat for one day:		
Pig Wt., lb.		
20	415	138
45	184	62
75	111	37
125	67	22
180	46	15
Suggested final dilution of contents of one packet*	128 gal	43 gal
Tiamulin concentration per gallon at suggested final dilution*	227 mg	677 mg

*Note: Increase or decrease dilution rate as required to obtain proper daily drug dose.