

JUL 21 1998

## FREEDOM OF INFORMATION SUMMARY

SUPPLEMENTAL NEW ANIMAL DRUG APPLICATION

NADA 113-232

LIQUAMYCIN® LA-200®  
(oxytetracycline amphoteric)

“...for changes to the product labeling to include use of the product in lactating dairy cows.”

Sponsored by:

PFIZER ANIMAL HEALTH

Date of Approval: \_\_\_\_\_

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**I. GENERAL INFORMATION**

NADA Number: 113-232

Sponsor: Pfizer Animal Health  
Exton, Pennsylvania 19341

Accepted Name: oxytetracycline amphoteric

Trade Name: LIQUAMYCIN® LA-200®

Marketing Status: Over-the-counter (OTC)

Effect of Supplement: This supplement provides for changes to the product labeling to include lactating dairy cows. Also, a tolerance for oxytetracycline in milk is established at 0.3 ppm.

**II. INDICATIONS FOR USE**

In beef cattle, dairy cattle, and calves, including pre-ruminating (veal calves), LIQUAMYCIN® LA-200® is indicated in the treatment of pneumonia and shipping fever complex associated with *Pasteurella* spp. and *Haemophilus* spp.; bovine keratoconjunctivitis caused by *Moraxella bovis*; foot-rot and diphtheria caused by *Fusobacterium necrophorum*; bacterial enteritis (scours) caused by *Escherichia coli*; wooden tongue caused by *Actinobacillus ligniersii*; leptospirosis caused by *Leptospira pomona*; and wound infections and acute metritis caused by strains of staphylococci and streptococci organisms sensitive to oxytetracycline.

**III. PRODUCT INFORMATION**

- A. Dosage Form: LIQUAMYCIN® LA-200® is a sterile, ready-to-use broad spectrum antibiotic parenteral formulation. Each milliliter contains 200 milligrams of oxytetracycline base as oxytetracycline amphoteric in an aqueous vehicle containing 2-pyrrolidone and povidone.
- B. Route of Administration: LIQUAMYCIN® LA-200® should be administered by intramuscular, subcutaneous, or intravenous injection to beef cattle, dairy cattle, and calves, including pre-ruminating (veal calves).
- C. Recommended Dosage:

CATTLE: A single dose of 9 mg of LIQUAMYCIN® LA-200® per pound of body weight administered intramuscularly or subcutaneously is recommended in the treatment of the following conditions: 1) bacterial pneumonia caused by *Pasteurella* spp. (shipping fever) in calves and yearlings, where retreatment is

impractical due to husbandry conditions, such as cattle on range, or where their repeated restraint is inadvisable; 2) infectious bovine keratoconjunctivitis (pinkeye) caused by *Moraxella bovis*.

LIQUAMYCIN® LA-200® can also be administered by intravenous, intramuscular, or subcutaneous injection at a level of 3 to 5 mg of oxytetracycline per pound of body weight per day. In the treatment of severe foot-rot and advanced cases of other indicated diseases, a dosage level of 5 mg per pound of body weight per day is recommended. Treatment should be continued 24 to 48 hours following remission of disease signs; however, not to exceed a total of four consecutive days. Consult your veterinarian if improvement is not noted within 24 to 48 hours of the beginning of treatment.

#### IV. EFFECTIVENESS

Since the effectiveness of this product for the labeled indications has previously been established under this NADA for cattle, including beef cattle (lactating and non-lactating), non-lactating dairy cattle, and calves (including preruminating calves), and because the agency believes that lactation has negligible impact on the pharmacokinetics of oxytetracycline (based on the relatively small percentage of drug secreted into milk), additional effectiveness studies were not required for this supplemental application.

#### V. ANIMAL SAFETY

The safety of LIQUAMYCIN® LA-200® for the treatment of various diseases of cattle has been previously demonstrated in NADA 113-232. Approval of this supplemental application does not require re-evaluation of animal safety.

#### VI. HUMAN SAFETY

##### A. Safe Concentrations of Total Residues

##### 1. 2-Pyrrolidone (excipient)

An Acceptable Daily Intake (ADI) of 1.2 mg/day was established for 2-pyrrolidone. The ADI was derived from a no-observed-effect-level of 20 mg/kg body weight per day in a 90-day oral toxicity study in the rat and a 1000-fold safety factor based on a reduction in body weight gain in females at the next highest dose of 100 mg/kg body weight per day.

$$\begin{aligned} \text{ADI} &= 20 \text{ mg/kg/day} \div 1000 \text{ safety factor} \\ &= 20 \text{ mcg/kg/day or } 1.2 \text{ mg/day/60 kg person} \end{aligned}$$

The portion of the ADI set aside for milk is 20%. Consequently, the ADI for 2-pyrrolidone is allocated in the following manner:

$$\text{ADI (milk)} = 4 \text{ mcg/kg/day}$$

$$\text{ADI (tissues)} = 16 \text{ mcg/kg/day}$$

Using this ADI and the current daily consumption factor of 1.5L for milk, a safe concentration (SC) of 2-pyrrolidone in milk is calculated as follows:

$$\begin{aligned} \text{SC (milk)} &= 4 \text{ mcg/kg} \times 60 \text{ kg} / 1.5 \text{ L} \\ &= 160 \text{ mcg/L} = 160 \text{ ppb} \end{aligned}$$

## 2. Oxytetracycline

Recently, the Center for Veterinary Medicine (CVM) conducted a re-evaluation of the toxicology and metabolism data that were used to support the original tolerance for oxytetracycline. The Center also reviewed studies performed after product approval.

This information shows that adverse effect of oxytetracycline on the intestinal microflora is the appropriate endpoint for establishing the safe concentration for oxytetracycline. Since all tetracycline drugs have similar microbiological effects, changing the tolerance for oxytetracycline required an evaluation of the cumulative effect on the intestinal microflora of all tetracyclines approved for use as new animal drugs. Based on this evaluation, the safe concentration for total tetracycline microbiological activity was limited to 1 ppm in the total diet (1.5 mg/person/day).

The limit of 1 ppm is equal to an ADI of 0.025 mg/kg of body weight (bw) per day. Sixty percent (60%) of the ADI is reserved for milk and 40% for edible tissues. The ADI for milk is calculated as follows:

$$\text{ADI for milk} = 0.025 \times 0.60 = 0.015 \text{ mg/kg bw/day}$$

Using the above ADI and the current consumption factors, the tolerance for total tetracyclines in milk is calculated as follows:

$$\text{Tolerance for total tetracyclines in milk} = \frac{0.015 \text{ mg/kg bw/day} \times 60 \text{ kg}}{1.5\text{L}} = 0.6 \text{ ppm}$$

If all of the unassigned ADI for oxytetracycline is used for milk, a tolerance of 0.6 ppm is calculated for oxytetracycline residues. However, to regulate oxytetracycline based on the active ingredient, oxytetracycline, rather than the vehicle, 2-pyrrolidone, a tolerance of 0.3 ppm is established for the sum of residues of the tetracyclines including chlortetracycline, oxytetracycline, and tetracycline, in milk. When residues of oxytetracycline are less than 0.3 ppm, residues of 2-pyrrolidone will be less than the safe concentration of 160 ppb.

### B. Residue Depletion Studies

1. Oxytetracycline milk residue depletion study in cattle treated intramuscularly with LIQUAMYCIN® LA-200®

Study HLA 6168-104 provided milk residue data for oxytetracycline.

This study was conducted in accordance with GLP regulations and CVM guidelines by Hazleton Laboratories, Madison, Wisconsin, under the direction of Dr. R. A. Hiles. The objective was to determine the depletion profile of

oxytetracycline residue in the milk of lactating dairy cattle following a single intramuscular administration of LIQUAMYCIN® LA-200® at 20 mg/kg.

At designated treatment intervals (24, 12, and 0 hours pre-treatment and 11, 24, 35, 48, 59, 72, 83, 96, 107, 120, 131, and 144 hours post-treatment), milk samples were collected from each of the twenty Holstein cows. All of the milk samples were assayed using a validated microbiological agar diffusion method. Mean milk residue values ( $\pm$  SD) are presented in Table 6.1. The statistical tolerance interval data are presented in Table 6.2.

**Table 6.1** Mean residues (ppm  $\pm$  SD) of oxytetracycline in milk following a single intramuscular injection of LIQUAMYCIN® LA-200® at a dose of 20 mg/kg body weight

| Time<br>(hours post-treatment) | Mean milk residues | Number of animals |
|--------------------------------|--------------------|-------------------|
| 0*                             | <0.15              | NA                |
| 11                             | 1.630 $\pm$ 0.525  | 20**              |
| 24                             | 1.680 $\pm$ 0.353  | 20                |
| 35                             | 1.220 $\pm$ 0.1542 | 20                |
| 48                             | 0.824 $\pm$ 0.1728 | 20                |
| 59                             | 0.572 $\pm$ 0.1462 | 20                |
| 72                             | 0.354 $\pm$ 0.0975 | 20                |
| 83                             | 0.234 $\pm$ 0.0712 | 20                |
| 96                             | 0.216 $\pm$ 0.0541 | 13                |
| 107                            | 0.198 $\pm$ 0.0330 | 4                 |
| 120                            | 0.155 $\pm$ 0.0071 | 2                 |
| 131                            | <0.15              | NA                |
| 144                            | <0.15              | NA                |

\* Sample collected immediately before dose administration

\*\* No. of animals used in the calculation (*i.e.*, those animals with milk residues  $\geq$ 0.15 ppm)

NA = not available

**Table 6.2** Statistical tolerance interval (a 95% confidence interval on the 99<sup>th</sup> percentile) for residues of oxytetracycline in milk following a single intramuscular injection of LIQUAMYCIN® LA-200® at a dose of 20 mg/kg body weight

| Time (hr) | Tolerance Value (ppb) |
|-----------|-----------------------|
| 12        | 5130                  |
| 24        | 3070                  |
| 36        | 1870                  |
| 48        | 1160                  |
| 60        | 750                   |
| 72        | 500                   |
| 84        | 340                   |
| 96        | 230                   |
| 108       | 160                   |
| 120       | 120                   |

Oxytetracycline residues in milk will deplete to less than 600 ppb, the tolerance if all of the ADI is partitioned for milk, by 72 hours post-treatment.

## 2. 2-Pyrrolidone

Plasma pharmacokinetic data for 2-pyrrolidone administered at 40 mg/kg were provided to address the human food safety of 2-pyrrolidone in the edible tissues and in milk, an ultrafiltrate of plasma. A dose of 40 mg/kg was used because it provides the equivalent amount of 2-pyrrolidone that would result from administering the label dose of LIQUAMYCIN® LA-200® (i.e., LA-200® contains 400 mg 2-pyrrolidone/mL and is administered at the label dose of 1 mL/10 kg).

Radiolabeled total residue data for <sup>14</sup>C-2-pyrrolidone were used to evaluate the depletion of vehicle from tissues and plasma of three lactating dairy cattle. The results are shown in Tables 6.3 and 6.4.

**Table 6.3** Concentration of total radioactivity ( $\mu\text{g/g}$ )\* and unchanged 2-pyrrolidone ( $\mu\text{g/g}$ ) in edible tissues of cattle treated IM with 40 mg/kg  $^{14}\text{C}$ -2-pyrrolidone

| Tissue           | Day 1 |               | Day 7 |               | Day 21 |               |
|------------------|-------|---------------|-------|---------------|--------|---------------|
|                  | Total | 2-pyrrolidone | Total | 2-pyrrolidone | Total  | 2-pyrrolidone |
| Plasma           | 13.3  | 2.74          | N/A   | N/A           | 0.26   | <0.05         |
| Liver            | 23.7  | 3.04          | 4.84  | <0.05         | 0.84   | <0.05         |
| Muscle           | 12.1  | 3.31          | 1.12  | <0.05         | 0.59   | <0.05         |
| Kidney           | 23.9  | 3.49          | 2.95  | <0.05         | 0.72   | <0.05         |
| Fat              | 17.2  | 1.39          | 1.03  | <0.05         | 4.22   | <0.05         |
| Injection site** | 12.2  | 3.52          | 1.14  | <0.05         | 0.71   | <0.05         |

\*  $\mu\text{g}$  2-pyrrolidone equivalents/g

\*\* mean right and left rear limb injection site values

N/A = Not available

**Table 6.4** Plasma concentrations of total radioactivity ( $\mu\text{g/mL}$ )\* and unchanged 2-pyrrolidone in cattle treated IM with 40 mg/kg  $^{14}\text{C}$ -2-pyrrolidone

| Hours after dosing  | 1    | 2    | 4    | 6    | 8    | 10   | 12   | 24   |
|---------------------|------|------|------|------|------|------|------|------|
| Total radioactivity | 46.0 | 56.0 | 52.5 | 43.9 | 42.8 | 34.8 | 32.0 | 12.2 |
| 2-pyrrolidone       | 51.4 | 55.5 | 56.6 | 43.3 | 40.3 | 25.5 | 26.8 | 6.7  |

\*  $\mu\text{g}$  2-pyrrolidone equivalents/g

Using the plasma pharmacokinetic data from 4 to 24 hours, a half-life of 6.6 hours ( $r^2 = -0.9919$ ) is calculated for unchanged 2-pyrrolidone in plasma. For purposes of modeling, it was assumed that concentrations of unchanged 2-pyrrolidone in milk would be comparable to concentrations in the other edible tissues. Plasma concentrations were used to estimate residues of unchanged 2-pyrrolidone in milk beyond 24 hours post-dosing, Table 6.5.

**Table 6.5** Estimated milk concentrations of unchanged 2-pyrrolidone ( $\mu\text{g/mL}$ ) at various times beyond 24 hours post-treatment in cattle receiving 40 mg/kg 2-pyrrolidone IM

| Time (hr.)           | 2    | 12   | 24  | 48   | 72    | 120    | 168    |
|----------------------|------|------|-----|------|-------|--------|--------|
| Concentration (ppm)† | 55.5 | 26.8 | 6.7 | 0.54 | 0.04* | <0.05* | <0.05* |
| Concentration (ppm)‡ | 55.5 | 26.8 | 6.7 | 0.84 | 0.11  | <0.05* | <0.05* |

\* LOQ = 0.05  $\mu\text{g/mL}$

† = half-life = 6.6 hours

‡ = half-life = 8 hours

Applying a half-life estimate of 8 hours to the pharmacokinetic data for 2-pyrrolidone residues in plasma, calculated residues of 2-pyrrolidone in milk will deplete to less than 160 ppb by 72 hours post-dosing. Assigning a milk discard in excess of 72 hours will ensure the safety of the entire LIQUAMYCIN® LA-200® product and permits the regulatory monitoring of residues using the active ingredient, oxytetracycline, rather than the vehicle, 2-pyrrolidone.

### C. Milk Discard Time Calculation

On the basis of data from the residue and pharmacokinetic studies, a milk discard period of 96 hours is assigned for the use of oxytetracycline in lactating dairy cattle. A tolerance of 300 ppb is established for residues of oxytetracycline in milk. Using a statistical tolerance algorithm, it is calculated that residues of the active ingredient, oxytetracycline, will deplete to less than 300 ppb by 96 hours post-dosing. Assigning a 96-hour milk discard period will simultaneously ensure that residues of oxytetracycline are less than the assigned tolerance of 300 ppb and that residues of 2-pyrrolidone in milk have depleted to less than 160 ppb at the time milk from treated dairy cattle is presented for human consumption.

The milk residue depletion study was conducted in cattle treated intramuscularly. Comparative plasma pharmacokinetic data indicate that the depletion following subcutaneous administration is somewhat slower than that associated with intramuscular administration as shown in Table 6.6. This slower depletion results in higher terminal oxytetracycline concentrations following subcutaneous administration but the differences were not statistically significant.

**Table 6.6** Least Square Means and Confidence Intervals comparing LIQUAMYCIN® LA-200® when administered by the intramuscular (IM) and subcutaneous (SC) routes

| Parameter                         | Mean<br>(IM Dosing) | Mean<br>(SC Dosing) | Ratio<br>SC/IM | Lower<br>CI** | Upper<br>CI** |
|-----------------------------------|---------------------|---------------------|----------------|---------------|---------------|
| C <sub>MAX</sub> * (µg/mL)        | 4.74                | 3.68                | 0.78           | 65%           | 91%           |
| AUC <sub>LAST</sub><br>(µg*hr/mL) | 119.5               | 118.3               | 0.99           | 87%           | 111%          |
| T <sub>MAX</sub> * (hr)           | 2.5                 | 5.0                 | N/A            | N/A           | N/A           |
| T <sub>LAST</sub> (hr)            | 116                 | 96                  | N/A            | N/A           | N/A           |
| C <sub>0.5</sub> * (µg/mL)        | 3.029               | 1.23                | 0.4            | N/A           | N/A           |
| C <sub>24</sub> (µg/mL)           | 1.763               | 1.99                | 1.13           | N/A           | N/A           |
| C <sub>48</sub> (µg/mL)           | 0.54                | 0.67                | 1.25           | N/A           | N/A           |
| C <sub>96</sub> (µg/mL)           | 0.10                | 0.14                | 1.34           | N/A           | N/A           |

\* statistically significantly different (p<0.05)

\*\*90% confidence intervals about the difference in treatment means using IM doses of LA-200® as the reference treatment. Equivalence is based upon a test and reference means differing by not more than ±20% (untransformed data).

N/A = Not applicable

The 96-hour oxytetracycline concentration ratio would indicate that milk residues of oxytetracycline following subcutaneous administration could be as much as 134% higher than those seen with intramuscular administration (*i.e.*, as high as 308 ppb 96 hours post-dosing). While this implies that milk residues would exceed the tolerance of 300 ppb, it assumes that 100% of the animals in the herd have been treated with oxytetracycline at its maximum dose and that milk from all of the treated animals will be consumed by humans. Since oxytetracycline injection will be used therapeutically, it is assumed that no more than one-third of the herd will be treated at any given time and, as such, oxytetracycline residues in bulk milk are expected to be less than 105 ppb.

#### D. Regulatory Analytical Method for Residues

The regulatory analytical method for detection of residues of the drug is a microbiological test using *Bacillus cereus* var *mycoides* (ATCC 11778). The method is found in *Antibiotic Residues in Milk, Dairy Products, and Animal Tissues: Methods, Reports and Protocols*, Revised October 1968, Reprinted December 1974, National Center for Antibiotic and Insulin Analysis, FDA, Washington, DC 20204.

## VII. AGENCY CONCLUSIONS

The data submitted in support of this supplemental NADA comply with the requirements of Section 512 of the Act and demonstrate that use of LIQUAMYCIN® LA-200® in lactating dairy cows is safe and effective for the indications stated on the product labeling. Under the Center's supplemental approval policy 21 CFR 514.106(b)(2), this is a Category II supplement which did not require re-evaluation of the safety and effectiveness data in the parent application.

Adequate directions for use of the product to treat lactating dairy cows have been written for the layman, and the conditions for use prescribed on the labeling are likely to be followed in practice. Therefore, the Center for Veterinary Medicine (CVM) has concluded that this product shall continue to have over-the-counter marketing status.

The toxicology of both the active ingredient, oxytetracycline, and the vehicle, 2-pyrrolidone, was evaluated for this approval. Based on a battery of toxicology tests evaluating the 2-pyrrolidone vehicle, an acceptable daily intake (ADI) of 20 µg/kg body weight/day was calculated. The ADI was partitioned for tissues and milk providing an ADI of 4 µg/kg body weight/day for milk. This yielded a safe concentration for total 2-pyrrolidone residues of 160 ppb in milk. The ADI for residues of oxytetracycline has recently been revised (61 FR 67453). If all of the unassigned ADI for oxytetracycline is used for milk, a tolerance of 600 ppb is calculated for oxytetracycline residues. However, to regulate oxytetracycline based on the active ingredient, oxytetracycline, rather than the vehicle, 2-pyrrolidone, a tolerance of 300 ppb is established for the sum of residues of the tetracyclines including chlortetracycline, oxytetracycline, and tetracycline, in milk. Any residues of the tetracyclines present in milk at a level of 300 ppb or less are considered safe.

A milk discard period of 96 hours is assigned for the use of oxytetracycline in lactating dairy cattle. The discard period is based on a statistical analysis of the depletion data, using an upper tolerance limit containing 99 percent of the population with a 95 percent confidence limit. Assigning a 96-hour milk discard period will simultaneously ensure that residues of oxytetracycline are less than the assigned tolerance of 300 ppb and that residues of 2-pyrrolidone in milk have depleted to less than 160 ppb at the time milk from treated dairy cattle is presented for human consumption.

The agency has carefully considered the potential environmental effects of this action and has concluded that the action will not have a significant impact on the human environment and that an environmental impact statement is not required. The agency's finding of no significant impact (FONSI) and the evidence supporting that finding are contained in an environmental assessment, which may be seen in the Dockets Management Branch (HFA-305), Room 1061, 5630 Fishers Lane, Rockville, Maryland 20852.

Under section 512(c)(2)(F)(iii) of the Federal Food, Drug, and Cosmetic Act, this approval for food-producing animals qualifies for THREE years of marketing exclusivity beginning on the date of approval, because the application contains substantial evidence of effectiveness of the drug involved, studies of animal safety or, in the case of food producing animals, human food safety studies (other than bioequivalence or residue studies) required for approval of the supplement and conducted or sponsored by the applicant. Exclusivity applies only to use of this drug in lactating dairy cattle for the labeled indications for which the supplemental application was approved. A notice of this supplemental approval is being forwarded for publication in the FEDERAL REGISTER.

LIQUAMYCIN® LA-200® patent number US 4,018,889 expired April 19, 1994.

**VIII. Approved Product Labeling**

A copy of the facsimile labeling is attached to this document.

- A. LIQUAMYCIN® LA-200® – Vial Label (100 mL)
- B. LIQUAMYCIN® LA-200® – Vial Label (250 mL)
- C. LIQUAMYCIN® LA-200® – Vial Label (500 mL)
- D. LIQUAMYCIN® LA-200® – Vial Carton (100 mL)
- E. LIQUAMYCIN® LA-200® – Vial Carton (250 mL)
- F. LIQUAMYCIN® LA-200® – Vial Carton (500 mL)
- G. LIQUAMYCIN® LA-200® – Package Insert



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978  
10-4292-00-X1

**Liquamycin LA-200** (oxytetracycline injection) is a sterile, preconstituted solution of the broad-spectrum antibiotic oxytetracycline.

**Caution:** When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

**Warnings:** Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours (8 milkings) after the last treatment must not be used for food.

**Precautions:** Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

**Refer to Package Insert for Complete Directions**

**Storage:** Store at room temperature 15°-30°C (59°-86°F). Keep from freezing.

**Restricted Drug (California)—**

**Use Only as Directed**

**Not for Human Use**



Distributed by:  
**Pfizer**  
**Animal Health**  
Kilmer, PA 17041, USA  
Div. of Pfizer Inc  
NY, NY 10017

## Liquamycin® LA-200® (oxytetracycline injection)

### Cattle Dosage Guide

At the first signs of pneumonia or pinkeye,\* administer a single dose of Liquamycin LA-200 by deep intramuscular injection, or subcutaneously, according to the following weight categories.\*\*

| Animal Weight (lb) | Number of mL or cc | Animal Weight (lb) | Number of mL or cc |
|--------------------|--------------------|--------------------|--------------------|
| 100                | 4.5                | 700                | 31.5               |
| 200                | 9.0                | 800                | 36.0               |
| 300                | 13.5               | 900                | 40.5               |
| 400                | 18.0               | 1000               | 45.0               |
| 500                | 22.5               | 1100               | 49.5               |
| 600                | 27.0               | 1200               | 54.0               |

\* See package insert for dosing instructions for other indicated diseases and full product information.

\*\* Do not administer more than 10 mL at any one injection site (1-2 mL per site in small calves).

Discontinue treatment at least 28 days prior to slaughter.

### Swine Dosage Guide

At the first signs of pneumonia,\* administer Liquamycin LA-200 by deep intramuscular injection according to the following weight categories.\*\*

| Animal Weight (lb) | Number of mL or cc | Animal Weight (lb) | Number of mL or cc |
|--------------------|--------------------|--------------------|--------------------|
| 10                 | 0.5                | 175                | 7.3                |
| 25                 | 1.1                | 200                | 9.0                |
| 50                 | 2.3                | 225                | 10.1               |
| 75                 | 3.4                | 250                | 11.3               |
| 100                | 4.5                | 275                | 12.4               |
| 125                | 5.6                | 300                | 13.5               |
| 150                | 6.8                | 325                | 14.6               |

\* See package insert for dosing instructions for other indicated diseases and full product information.

\*\* Do not administer more than 5 mL at any one injection site.

Discontinue treatment at least 28 days prior to slaughter.

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## Liquamycin® LA-200® (oxytetracycline injection)

### Antibiotic

Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline.

For the treatment of disease in beef cattle, dairy cattle; calves, including preruminating (veal) calves; and swine

For animal use only

**Net Contents: 500 mL**

NADA #113-232, Approved by FDA



U.S. Patent No. 4,018,889

Made in USA

3 1/4" x 3 1/4" x 5 1/16"

PMS 116

PMS 477

PMS 485

Black

60%  
Black

Pattern  
Varnish

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# Liquamycin® LA-200® (oxytetracycline injection)

## Antibiotic

Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline.

For the treatment of disease in beef cattle; dairy cattle; calves, including preruminating (veal) calves; and swine

For animal use only

Net Contents: 500 mL

NADA #113-232, Approved by FDA



Liquamycin LA-200 (oxytetracycline injection) is a sterile, prepackaged solution of the broad-spectrum antibiotic oxytetracycline. Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline, and on a w/v basis, 40.0% Pyridoxine, 5.0% potassium, 1.5% magnesium oxide, 0.2% sodium formaldehyde sulfoxylate (as preservative), monohydroxymethane and/or hydrochloric acid as required to adjust pH.

**Caution:** When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

**Warnings:** Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk from animals during treatment and for 96 hours (8 milkings) after the last treatment must not be used for food. Preservatives Exceeding the highest recommended level of drug per lb of body weight per day, administered more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

**Directions:** Cattle: A single dose of 8 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered intramuscularly or subcutaneously is recommended in the treatment of the following conditions: (1) bacterial pneumonia caused by *Pasteurella* spp. (shipping fever) in calves and yearlings, where treatment is impractical due to husbandry conditions, such as cattle on range, or where repeated treatment is inadvisable; (2) infectious bovine keratoconjunctivitis (pink eye) caused by *Moraxella* bovis.

Swine: A single dose of 8 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered intramuscularly is recommended in the treatment of bacterial pneumonia caused by *Pasteurella multocida* in swine, where treatment is impractical due to husbandry conditions or where repeated treatment is inadvisable. Refer to Package Insert for Complete Directions.

Storage: Store at room temperature 15°-30°C (59°-86°F). Keep from freezing.

Reconstituted Drug (Liquamycin LA-200) -  
Use Only as Directed  
Not for Human Use  
U.S. Patent No. 4,014,288

Manufactured by  
**Pfizer**  
Animal Health  
New York, NY 10017  
978  
05-4292-00-X1  
Made in USA

Roll Dot Position: R-5

5" (W) x 3 3/8" (H)

PMS 116



PMS 477



PMS 485



Black



60%  
Black



Pattern  
Varnish

05-4292-00-X1 Draft #1 8-26-97

3510

**Liquamycin<sup>®</sup>**  
**LA-200<sup>®</sup>**  
*(oxytetracycline injection)*



0 87219 04697 5

Liquamycin LA-200 (oxytetracycline injection) is a sterile, preconstituted solution of the broad-spectrum antibiotic oxytetracycline.

**Caution:** When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

**Warnings:** Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours (8 milkings) after the last treatment must not be used for food.

**Precautions:** Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

**Refer to Package Insert for Complete Directions**

**Storage:** Store at room temperature 15°-30°C (59°-86°F). Keep from freezing.

**Restricted Drug (California)—  
Use Only as Directed**

**Not for Human Use**



Distributed by:  
**Pfizer**  
**Animal Health**  
Kenilworth, PA 19041, USA  
Div. of Pfizer Inc.  
NY, NY 10017

**Liquamycin®  
LA-200®**  
(oxytetracycline injection)

**Cattle Dosage Guide**  
At the first signs of pneumonia,\* administer a single dose of Liquamycin LA-200 by deep intramuscular injection, or subcutaneously, according to the following weight categories.\*\*

| Animal Weight (lb) | Number of ml, or cc | Animal Weight (lb) | Number of ml, or cc |
|--------------------|---------------------|--------------------|---------------------|
| 100                | 4.5                 | 700                | 31.5                |
| 200                | 9.0                 | 800                | 36.0                |
| 300                | 13.5                | 900                | 40.5                |
| 400                | 18.0                | 1000               | 45.0                |
| 500                | 22.5                | 1100               | 49.5                |
| 600                | 27.0                | 1200               | 54.0                |

\* See package insert for dosing instructions for other indicated diseases and full product information.  
\*\* Do not administer more than 10 mL of any one injection site (1-2 mL per site in small calves).

Discontinue treatment at least 28 days prior to slaughter.

**Swine Dosage Guide**  
At the first signs of pneumonia,\* administer Liquamycin LA-200 by deep intramuscular injection according to the following weight categories.\*\*

| Animal Weight (lb) | Number of ml, or cc | Animal Weight (lb) | Number of ml, or cc |
|--------------------|---------------------|--------------------|---------------------|
| 10                 | 0.5                 | 175                | 7.8                 |
| 25                 | 1.1                 | 200                | 9.0                 |
| 50                 | 2.2                 | 225                | 10.1                |
| 75                 | 3.4                 | 250                | 11.2                |
| 100                | 4.5                 | 275                | 12.4                |
| 125                | 5.6                 | 300                | 13.5                |
| 150                | 6.8                 | 325                | 14.6                |

\* See package insert for dosing instructions for other indicated diseases and full product information.  
\*\* Do not administer more than 5 mL of any one injection site.

Discontinue treatment at least 28 days prior to slaughter.

U.S. Patent No. 4,018,869      Made in USA

4695



**Liquamycin®  
LA-200®**  
(oxytetracycline injection)

**Antibiotic**

Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline.

For the treatment of disease in beef cattle; dairy cattle; calves, including preparturient (veal) calves; and swine.

For animal use only

**Net Contents: 250 mL**

NADA #113-232, Approved by FDA

**Liquamycin®  
LA-200®**  
(oxytetracycline injection)



2 1/2" x 2 1/2" x 6"

PMS 116

PMS 477

PMS 485

Black

60%  
Black

Pattern  
Varnish

4696



# Liquamycin® LA-200® (oxytetracycline injection)

## Antibiotic

Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline.

For the treatment of disease in beef cattle; dairy cattle; calves, including preruminating (veal) calves; and swine

For animal use only

**Net Contents: 250 mL**

NADA #113-232, Approved by FDA



Liquamycin LA-200 (oxytetracycline injection) is a sterile, preservative-free solution of the broad-spectrum antibiotic oxytetracycline. Each mL contains 200 mg of oxytetracycline base as amphoteric oxytetracycline, and on a w/v basis, 40.0% 2-pyrrolidone, 3.0% povidone, 1.5% magnesium oxide, 0.2% sodium formaldehyde sulfoxylate (as a preservative), monothiourethane and/or hydrochloric acid as required to adjust pH.

**Caution:** When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

**Warnings:** Benzathone treatment of at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours following after the last treatment must not be used for food.

**Precautions:** Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

**Dosage:**

**Cattle:** A single dose of 8 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered intramuscularly or subcutaneously is recommended in the treatment of the following conditions: (1) bacterial pneumonia caused by *Pasteurella* spp. (shipping fever) in calves and yearlings, where retreatment is impractical due to husbandry conditions, such as culls on range, or where repeated retreatment is undesirable; (2) infectious bovine keratoconjunctivitis (pink eye) caused by *Moraxella* spp.

**Swine:** A single dose of 8 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered intramuscularly is recommended in the treatment of bacterial pneumonia caused by *Pasteurella multocida* in swine, where retreatment is impractical due to husbandry conditions or where repeated retreatment is undesirable.

**How to Prepare:** See the Complete Directions.

**Storage:** Store at room temperature 15°-30°C (59°-86°F). Keep from freezing.

**Manufactured Drug (Liquamycin®) —**  
 Division of  
**Pfizer**  
 Animal Health  
 Kenilworth, NJ 07033  
 U.S. Patent No. 4,012,829

078  
 05-4291-00-X1  
 Made in USA

Roll Dot Position: R-4

5" (W) x 3 3/8" (H)



PMS 116



PMS 477



PMS 485



Black



60%  
Black



Pattern  
Varnish

05-4291-00-X1 Draft #1 8-26-97

✓ 3/20/98

Net Contents: 100 mL

Liquamycin®  
LA-200®  
(oxytetracycline injection)

4690



578  
10-4290-00-X1

2780

Liquamycin®  
LA-200®  
(oxytetracycline injection)

4690

Liquamycin®  
LA-200®  
(oxytetracycline injection)

Liquamycin®  
LA-200®  
(oxytetracycline injection)

Antibiotic

Each mL contains 200 mg  
of oxytetracycline base as  
amphoteric oxytetracycline.

For the treatment of disease in beef  
cattle, dairy cattle, calves, including  
preparturient (veal) calves, and swine.

For animal use only

Net Contents: 100 mL

NADA 1119-232, Approved by FDA



Made in USA

**Cattle Dosage Guide**  
At the first signs of pneumonia or pleuropneumonia,<sup>1</sup> administer 10 single doses of Liquamycin LA-200 by deep intramuscular injection, or subcutaneously, according to the following weight categories.<sup>2\*</sup>

| Actual Weight (kg) | Number of mL or mL | Actual Weight (kg) | Number of mL or mL |
|--------------------|--------------------|--------------------|--------------------|
| 100                | 4.2                | 300                | 12.6               |
| 200                | 8.4                | 400                | 16.8               |
| 300                | 12.6               | 500                | 21.0               |
| 400                | 16.8               | 600                | 25.2               |
| 500                | 21.0               | 700                | 29.4               |
| 600                | 25.2               | 800                | 33.6               |

**Swine Dosage Guide**  
At the first signs of pneumonia,<sup>1</sup> administer Liquamycin LA-200 by deep intramuscular injection according to the following weight categories.<sup>2\*</sup>

| Actual Weight (kg) | Number of mL or mL | Actual Weight (kg) | Number of mL or mL |
|--------------------|--------------------|--------------------|--------------------|
| 10                 | 0.2                | 100                | 2.0                |
| 20                 | 0.4                | 200                | 4.0                |
| 30                 | 0.6                | 300                | 6.0                |
| 40                 | 0.8                | 400                | 8.0                |
| 50                 | 1.0                | 500                | 10.0               |

Liquamycin LA-200 (oxytetracycline injection) is a sterile, preservative-free solution of the broad-spectrum antibiotic oxytetracycline.  
**Caution:** When administered to cattle, muscle discoloration may accompany the clearing of the injection site and surrounding tissues during the draining procedure.  
**Warnings:** Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours (3 milkings) after the last treatment must not be used for food.  
**Precautions:** Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.  
**Refer to Package Insert for Complete Directions**  
**Storage:** Store at room temperature 15°-30°C (59°-86°F). Keep from freezing.  
**Excipient Drug (California):**  
Use Only as Directed  
Not for Human Use

Animal Health  
Kenilworth, NJ 07033

2 1/8" x 2 1/8" x 4"

PMS 116 PMS 477 PMS 485 Black 60% Black Pattern Varnish

10-4290-00-X1 Draft #1 8-26-97

✓ 2/20/97

4690

**Liquamycin®**  
**LA-200®**  
*(oxytetracycline injection)*

**Antibiotic**

Each mL contains 200 mg of oxytetracycline base as anhydrous oxytetracycline.

For the treatment of disease in beef cattle; dairy cattle; calves, including preruminating beef calves; and swine.

For animal use only.

**Net Contents: 100 mL**

NADA #113-232, Approved by FDA.



**Warnings:** LA-200 (oxytetracycline injection) is a tetracycline antibiotic. It is contraindicated in patients with a history of hypersensitivity to tetracyclines. It is contraindicated in patients with a history of hypersensitivity to any of the components of this product. It is contraindicated in patients with a history of hypersensitivity to any of the components of this product. It is contraindicated in patients with a history of hypersensitivity to any of the components of this product.

**Caution:** When administered to cattle, muscle atrophy may occur. This is usually reversible and does not affect the quality of the meat. However, the meat should not be used for human consumption.

**Directions:** For the treatment of disease in beef cattle, dairy cattle, calves, including preruminating beef calves, and swine, inject 10 mL (0.5 mL/kg) of LA-200 (oxytetracycline injection) intramuscularly (i.m.) once daily for 10 to 14 days. For the treatment of disease in calves, inject 10 mL (0.5 mL/kg) of LA-200 (oxytetracycline injection) intramuscularly (i.m.) once daily for 10 to 14 days. For the treatment of disease in swine, inject 10 mL (0.5 mL/kg) of LA-200 (oxytetracycline injection) intramuscularly (i.m.) once daily for 10 to 14 days.

**How Supplied:** LA-200 (oxytetracycline injection) is supplied in 100 mL glass ampules containing 200 mg of oxytetracycline base as anhydrous oxytetracycline. Each ampule contains 200 mg of oxytetracycline base as anhydrous oxytetracycline. Each ampule contains 200 mg of oxytetracycline base as anhydrous oxytetracycline.

**Storage:** Store in a cool, dry place. Do not freeze. Protect from light. Keep out of reach of children.

**U.S. Patent No. 4,018,830**

**Manufactured by:**  **Pfizer Inc.**  
 New York, NY 10017

**Product of:**  **Pfizer Inc.**  
 New York, NY 10017

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 New York, NY 10017

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 New York, NY 10017

**Product of:**  **Pfizer Inc.**  
 New York, NY 10017

**Product of:**  **Pfizer Inc.**  
 New York, NY 10017

Roll Dot Position: P-2  
4 3/4" (W) x 1 7/8" (H)

PMS 116  PMS 477  PMS 485  Black  60% Black 

Pattern Varnish

05-4290-00-X1 Draft #1 8-26-97



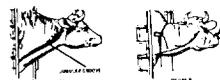
**Use of LIQUAMYCIN LA-200:** is indicated for use in the treatment of disease due to oxytetracycline-susceptible organisms in beef cattle, dairy cattle, calves, including pre-maturing (veal) calves, and swine. A thoroughly cleaned, sterile needle and syringe should be used for each injection. Needles and syringes may be sterilized by boiling in water for 15 minutes. In cold weather, Liquamycin LA-200 should be warmed to room temperature before administration to animals. Before withdrawing the solution from the bottle, disinfect the rubber cap on the bottle with suitable disinfectant, such as 70% alcohol. The injection site should be similarly cleaned with the disinfectant. Needles of 16-18 gauge and 1-1½ inches long are adequate for intramuscular and subcutaneous injections. Needles 2-3 inches are recommended for intravenous use.

**Intramuscular Administration:**  
Intramuscular injections should be made by directing the needle of suitable gauge and length into the fleshy part of a thick muscle such as in the rump, hip, or thigh regions; avoid blood vessels and major nerves. Before injecting the solution, pull back gently on the plunger. If blood appears in the syringe, a blood vessel has been entered; withdraw the needle and select a different site. No more than 10 ml should be injected intramuscularly at any one site in adult beef and dairy cattle, and not more than 5 ml per site in adult swine; rotate injection sites for each succeeding treatment. The volume administered per injection site should be reduced according to age and body size so that 1-2 ml per site is injected in small calves.

**Subcutaneous Administration:**  
Subcutaneous injections in beef cattle, dairy cattle, and calves, including pre-maturing (veal) calves, should be made by directing the needle of suitable gauge and length through the loose folds of the neck skin in front of the shoulder. Care should be taken to ensure that the tip of the needle has penetrated the skin but is not lodged in muscle. Before injecting the solution, pull back gently on the plunger. If blood appears in the syringe, a blood vessel has been entered; withdraw the needle and select a different site. The solution should be injected slowly into the area between the skin and muscles. No more than 10 ml should be injected subcutaneously at any one site in adult beef and dairy cattle; rotate injection sites for each succeeding treatment. The volume administered per injection site should be reduced according to age and body size so that 1-2 ml per site is injected in small calves.

**Intravenous Administration:**  
Liquamycin LA-200 may be administered intravenously to beef and dairy cattle. As with all highly concentrated materials, Liquamycin LA-200 should be administered slowly by the intravenous route.

**Preparation of the Animal for Injection:**  
1. **Approximate location of vein:** The jugular vein runs in the angular groove on each side of the neck from the angle of the jaw to just above the ossikel and slightly above and to the side of the windpipe. (See Fig. 1).  
2. **Restraint:** A stanchion or chute is ideal for restraining the animal. With a halter, rope, or cattle leader (cross tongs), pull the animal's head around the side of the stanchion, cattle chutes, or post in such a manner to form a bow in the neck (see Fig. 1), then snub the head securely to prevent movement. By forming the bow in the neck, the outside curvature of the bow tends to expose the jugular vein and make it easily accessible. **Caution:** Avoid restraining the animal with a tight rope or halter around the throat or upper neck which might impede blood flow. Animals that are down present no problem so far as restraint is concerned.  
3. **Clean area:** Clip hair in area where injection is to be made over the vein in the upper third of the neck. Clean and disinfect the skin with alcohol or other suitable antiseptic.



**Entering the Vein and Making the Injection:**

1. **Raise the vein:** This is accomplished by tying the choke rope tightly around the neck close to the shoulder. The rope should be tied in such a way that it will not come loose and so that it can be untied quickly by pulling the loose end (see Fig. 1). In thick-necked animals, a block of wood placed in the angular groove between the rope and the hide will help considerably in applying the desired pressure at the right point. The vein is a soft flexible tube through which blood flows back to the heart. Under ordinary conditions it cannot be seen or felt with the fingers. When the flow of blood is blocked at the base of the neck by the choke rope, the vein becomes enlarged and rigid because of the back pressure. If the choke rope is sufficiently tight, the vein stands out and can be easily seen and felt in thin-necked animals. As a further check in identifying the vein, tap it with the fingers in front of the choke rope. Pulsations that can be seen or felt with the fingers in front of the point being tapped will confirm the fact that the vein is properly distended. It is impossible to put the needle into the vein unless it is distended. Experienced operators are able to raise the vein simply by hand pressure, but the use of a choke rope is more certain.

2. **Inserting the needle:** This involves 3 distinct steps. First, insert the needle through the hide. Second, insert the needle into the vein. This may require 2 or 3 attempts before the vein is entered. The vein has a tendency to roll away from the point of the needle, especially if the needle is not sharp. The vein can be steadied with the thumb and finger of one hand. With the other hand, the needle point is placed directly over the vein, sighting it so that its direction is along the length of the vein, either toward the head or toward the heart. Properly positioned this way, a quick thrust of the needle will be followed by a spurt of blood through the needle, which indicates that the vein has been entered. Third, once in the vein, the needle should be inserted along the length of the vein all the way to the hub, exercising caution to see that the needle does not penetrate the opposite side of the vein. Continuous steady flow of blood through the needle indicates that the needle is still in the vein. If blood does not flow continuously, the needle is out of the vein (or clogged) and another attempt must be made. If difficulty is encountered, it may be advisable to use the vein on the other side of the neck.

3. **While the needle is being placed in proper position in the vein, an assistant should get the medication ready so that the injection can be started without delay after the vein has been entered.**

4. **Making the injection:** With the needle in position as indicated by continuous flow of blood, release the choke rope by a quick pull on the free end. This is essential—the medication cannot flow into the vein while it is blocked. Immediately connect the syringe containing Liquamycin LA-200 to the needle and slowly depress the plunger. If there is resistance to depression of the plunger, this indicates that the needle has slipped out of the vein or is clogged and the procedure will have to be repeated. Watch for any swelling under the skin near the needle, which would indicate that the medication is not going into the vein. Should this occur, it is best to try the vein on the opposite side of the neck.

5. **Removing the needle:** When injection is complete, remove needle with straight pull. Then apply pressure over area of injection momentarily to control any bleeding through needle puncture, using cotton soaked in alcohol or other suitable



out of the vein (or is clogged) and the procedure will have to be repeated. Watch for any swelling under the skin near the needle, which would indicate that the medication is not going into the vein. Should this occur, it is best to try the vein on the opposite side of the neck.

5. Removing the needle. When injection is complete, remove needle with straight pull. Then apply pressure over area of injection momentarily to control any bleeding through needle puncture, using cotton soaked in alcohol or other suitable antiseptic.

**Restricted Drug (California)—  
Use Only as Directed**

**Not For Human Use**

NADA #113-232, Approved by FDA

TAKE TIME



OBSERVE LABEL  
DIRECTIONS



Distributed by:

**Animal Health**

Exton, PA 19341, USA  
Div. of Pfizer Inc  
NY, NY 10017

69-4690-00-X1  
August 1997  
Printed in USA



sis caused by *Leptospira pomona*.

In sows, Liguamycin LA-200 is indicated as an aid in the control of infectious enteritis (baby pig scours, colibacillosis) in suckling pigs caused by *Escherichia coli*.

**DOSAGE:**

**Cattle:** Liguamycin LA-200 is to be administered by intramuscular, subcutaneous, or intravenous injection to beef cattle, dairy cattle, and calves, including preruminating (veal) calves.

A single dose of 9 mg of Liguamycin LA-200 per lb of body weight administered intramuscularly or subcutaneously is recommended in the treatment of the following conditions: 1) bacterial pneumonia caused by *Pasteurella* spp. (shipping fever) in calves and yearlings, where retreatment is impractical due to husbandry conditions, such as cattle on range, or where their repeated restraint is inadvisable; 2) infectious bovine keratoconjunctivitis (pink eye) caused by *Moraxella bovis*.

Liguamycin LA-200 can also be administered by intravenous, subcutaneous, or intramuscular injection at a level of 3-5 mg of oxytetracycline per lb of body weight per day. In the treatment of severe foot rot and advanced cases of other indicated diseases, a dosage level of 5 mg/lb of body weight per day is recommended. Treatment should be continued 24-48 hours following remission of disease signs; however, not to exceed a total of 4 consecutive days. Consult your veterinarian if improvement is not noted within 24-48 hours of the beginning of treatment.

**Swine:** A single dose of 9 mg of Liguamycin LA-200 per lb of body weight administered intramuscularly is recommended in the treatment of bacterial pneumonia caused by *Pasteurella multocida* in swine, where retreatment is impractical due to husbandry conditions or where repeated restraint is inadvisable.

Liguamycin LA-200 can also be administered by intramuscular injection at a level of 3-5 mg of oxytetracycline per lb of body weight per day. Treatment should be continued 24-48 hours following remission of disease signs; however, not to exceed a total of 4 consecutive days. Consult your veterinarian if improvement is not noted within 24-48 hours of the beginning of treatment.

For sows, administer once intramuscularly 3 mg of oxytetracycline per lb of body weight approximately 8 hours before farrowing or immediately after completion of farrowing.

For swine weighing 25 lb of body weight and under, Liguamycin LA-200 should be administered undiluted for treatment at 9 mg/lb but should be administered diluted for treatment at 3 or 5 mg/lb.

| Body Weight | 9 mg/lb Dosage                        |                                     | 3 or 5 mg/lb Dosage |         |
|-------------|---------------------------------------|-------------------------------------|---------------------|---------|
|             | Volume of Undiluted Liguamycin LA-200 | Volume of Diluted Liguamycin LA-200 | Dilution*           | 5 mg/lb |
| 5 lb        | 0.2 mL                                | 0.6 mL                              | 1:7                 | 1.0 mL  |
| 10 lb       | 0.5 mL                                | 0.9 mL                              | 1:5                 | 1.5 mL  |
| 25 lb       | 1.1 mL                                | 1.5 mL                              | 1:3                 | 2.5 mL  |

\* To prepare dilutions, add 1 part Liguamycin LA-200 to 3, 5, or 7 parts of sterile water, or 5% dextrose solution as indicated; the diluted product should be used immediately.

Visual Code Bars: 5,6,7,8,9

2" (W) X 21 1/2" (H)

Folds to: 2" X 1"

69-4690-00-X1 Draft #1 8-26-97

60%  
Black

Black

