

Approval Date: _____

FREEDOM OF INFORMATION SUMMARY

ORIGINAL NEW ANIMAL DRUG APPLICATION

NADA 100-094

**POULTRYSULFA Soluble Powder
(sodium sulfamethazine, sodium sulfamerazine, sodium
sulfaquinoxaline)**

**For treatment of coccidiosis and acute fowl cholera in
chickens and turkeys**

Sponsored by:

Alpharma Inc.

FREEDOM OF INFORMATION SUMMARY**1. GENERAL INFORMATION:**

- a. File Number: NADA 100-094
- b. Sponsor: Alpharma, Inc.
One Executive Drive
Fort Lee, NJ, 07024

Drug Labeler Code: 046573
- c. Established Names: Sodium sulfamethazine, sodium sulfamerazine, and sodium sulfaquinoxaline
- d. Proprietary Name: POULTRYSULFA
- e. Dosage Form: Soluble Powder
- f. How Supplied: Packet (195 grams)
- g. How Dispensed: OTC
- h. Amount of Active Ingredients: 78 grams sodium sulfamethazine
78 grams sodium sulfamerazine
39 grams sodium sulfaquinoxaline
- i. Route of Administration: Oral
- j. Species/Class: Chickens and turkeys
- k. Recommended Dosage: Acute Fowl Cholera – Turkeys and chickens: Provide medicated water (.04% solution) for 2-3 days.

Coccidiosis – Turkeys: Provide medicated water (.025% solution) for 2 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days.

Coccidiosis – Chickens: Provide medicated water (.04% solution) for 2-3 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days.

- l. Pharmacological Category: Anticoccidial/Antimicrobial
- m. Indications:
- Acute Fowl cholera – TURKEYS AND CHICKENS: As an aid in the control of acute fowl cholera caused by *Pasteurella multocida* susceptible to sulfamethazine, sulfamerazine and sulfaquinoxaline.
- Coccidiosis – TURKEYS: As an aid in the control of coccidiosis caused by *Eimeria meleagridis* and *E. adenoides* susceptible to sulfamethazine, sulfamerazine, and sulfaquinoxaline.
- Coccidiosis – CHICKENS: As an aid in the control of coccidiosis caused by *Eimeria tenella* and *E. necatrix* susceptible to sulfamethazine, sulfamerazine, and sulfaquinoxaline.

2. TARGET ANIMAL SAFETY:

Sulfamethazine, sulfamerazine and sulfaquinoxaline were evaluated within the scope of the National Academy of Sciences/National Research Council (NAS/NRC) Drug Efficacy Study Implementation (DESI) program. They were evaluated as safe to the target animal on the basis of published literature and labeling revisions by FDA for the claims and species listed in the Federal Register, Vol 49, No. 130, July 5, 1984.

3. DRUG EFFECTIVENESS:

Sulfamethazine, sulfamerazine and sulfaquinoxaline were evaluated within the scope of the National Academy of Sciences/National Research Council (NAS/NRC) Drug Efficacy Study Implementation (DESI) program. They were evaluated as probably effective on the basis of published literature and labeling revisions. Consequently, they were moved to the effective category by FDA for the claims and species listed in the Federal Register, Vol 49, No. 130, July 5, 1984. The label revisions requested by NAS/NRC were: (1.) Each disease claim should be properly qualified as appropriate for use in (name of disease) caused by pathogens (genus, species) sensitive to sulfamethazine, sulfamerazine and sulfaquinoxaline. If the disease claim cannot be qualified, the claim must be dropped.

(2.) The claim for coccidiosis should be properly qualified by listing the species for each respective host. (3.) The claim for infectious coryza in chickens and turkey should be supported by data or it should be deleted. (4.) The labeling should warn that treated animals must actually consume enough medicated water to provide a therapeutic dose. (5.) The labeling should state the desired oral dose per unit of animal weight per day for each species as a guide of effective use.

Thereafter, the sponsor complied with the evaluation of NAS/NRC and FDA's conclusions in the following manner: (1.) two diseases have been properly qualified as being caused by pathogens sensitive to sulfamethazine, sulfamerazine and sulfaquinoxaline for chickens and turkeys. (coccidiosis and acute fowl cholera) (2.) The claim for coccidiosis in chickens is caused by *Eimeria tenella* and *E. necatrix* and the claim for coccidiosis in turkeys is caused by *Eimeria meleagrimitis* and *E. adenoides* is properly listed on the label. (3.) The claim for infectious coryza has been deleted from the labeling. (4.) The label carries the following statement concerning water: Treated animals must actually consume enough medicated water to provide a therapeutic dose. (5.) The label contains appropriate direction for use to make a .04% solution by adding one packet to 1 gallon of water for the treatment of acute fowl cholera and .025% by adding one packet to 1.6 gallons for the treatment of coccidiosis. Published dosages for poultry are expressed as concentrations in drinking water.

FDA has concluded that NADA's for drug products containing more than one sulfonamide will comply with the Center for Veterinary Medicine's combination drug policy (21 CFR 514.1(b)(8)(v)) without submission of data from studies that compare the combination of sulfonamides with individual sulfonamides. Because all sulfonamides have the same mechanism of action, each individual sulfonamide can be expected to contribute to the total effect of the combination drug. Sponsors of pending NADA's for sulfonamide products containing two or more sulfonamides had to submit bioavailability data demonstrating sulfonamide blood levels (serum or plasma of blood) of 8-mg percent or more. In the alternative, the sponsor could submit the results of clinical study demonstrating the effectiveness of the combination drug against one disease claim on the label in one of the labeled species. The sponsor chose to submit a clinical study for the control of acute fowl cholera in turkeys.

A clinical study was performed at Health Management Services, Tulare, CA, where the efficacy of POULTRYSULFA was demonstrated in turkeys for control of infection due to *Pasteurella multocida*. Eighty birds, 12 weeks of age, were inoculated with the pathogenic organism. One half of the flock was administered POULTRYSULFA in drinking water at a concentration of 0.04% immediately after inoculation. Medication continued for 5 days. The other half did not receive any medication during the entire study period. Observation continued 10 days post challenge.

Each group was monitored for mortality, weight gain, and lung scores. There was a significant difference in mortality and weight gain between the two groups. Group I (untreated) experienced a mortality rate of 53% (21 out of 40 birds). Group II (treated) experienced a 10% mortality rate (4 out of 40 birds). Group I showed an average loss of 0.4 kg for each surviving bird compared to an average gain of 0.57 kg for birds in Group II.

The average lung scores for birds dying during the study were similar in both groups. Group I lung scores were 2.1 while Group II were 2.2 (0= normal, 3= severe). All surviving birds were sacrificed on day 10 and their lungs scored. There was no significant differences in the scores for both groups (Group I= 0.1, Group II= 0.0).

The results of this study demonstrated that 0.04% of POULTRY SULFA for 2-3 days is effective for the control of acute fowl cholera in turkeys and chickens.

4. HUMAN SAFETY:

Studies to Establish the Withdrawal Time:

A tissue residue study using a triple sulfonamide combination (40% sodium sulfamethazine, 40% sodium sulfamerazine and 20% sodium sulfaquinoxaline) in broiler chickens. Study NO. 8933c.

1. Study Author: John W. Byrd, MS
2. Study Completion Date: June 1, 1990
3. Performing Laboratory: Southwest Bio-Labs, Inc.
Las Cruces, NM 88005
4. Animals Used: Forty-four 3-day-old Cornish Rock broiler chickens (22 M and 22F), weighing 161.04 ± 25.98 g were acquired for the study. At the time of dosing, broilers weighed 1.5 ± 0.4 kg and were 41 days of age.
5. Route of drug administration: Orally in drinking water.
6. Time and duration of dosing: The PoultrySulfa was administered in the drinking water for five consecutive days. Drinking water solutions were prepared daily as a 0.04% solution.
7. Results:

Table Mean concentration (ppm) of sulfamethazine (SMZ) + sulfamerazine (SMR) and sulfaquinoxaline (SQ) in the liver of chickens following treatment with medicated drinking water containing 0.04% PoultrySulfa for five days.

Time (hr)	Liver residues (ppb)	
	SMZ + SMR*	SQ
4	1692.11 ± 427.07	11939.52 ± 1551.18
72	52.57 ± 8.01	74.94 ± 10.11
96	31.73 ± 12.18	41.42 ± 27.70
120	18.69	13.19
144	<LOD**	<LOD
168	<LOD	<LOD
192	<LOD	26.70 ± 6.17

* SMZ + SMR are measured as a single entity

** LOD (SMZ + SMR) = 15 ppb; LOD (SQ) = 10 ppb

A tissue residue study using a triple sulfonamide combination (40% sodium sulfamethazine, 40% sodium sulfamerazine and 20% sodium sulfaquinoxaline) in turkey poult. Study No. 8908t.

1. Study Author: John W. Byrd, MS
2. Study Completion Date: October 1989
3. Performing Laboratory: Southwest Bio-Labs, Inc.
Las Cruces, NM 88005
4. Animals Used: Twelve 1-day-old Nicholas Broad Breasted White turkey poults (6 M and 6 F), weighing 145.75 g were acquired for use in the study. At the time of dosing, broilers weighed 1.2 ± 0.2 kg and were 34 days of age.
5. Route of drug administration: Orally in drinking water.
6. Time and duration of dosing: PoultrySulfa was administered in the drinking water for five consecutive days. Drinking water solutions were prepared daily as a 0.04% solution.
7. Results:

Table Mean concentration (ppm) of sulfamethazine (SMZ) + sulfamerazine (SMR) and sulfaquinoxaline (SQ) in the liver of chickens following treatment with medicated drinking water containing 0.04% PoultrySulfa for five days.

Withdrawal (days)	Liver residues (ppb)	
	SMZ + SMR*	SQ
4	1243.40±963.93	5737.50±2469.92
48	31.75±8.27	348.65±226.06
96	<LOD	26.55±10.25
144	<LOD	<LOD
192	<LOD	<LOD

* SMZ + SMR are measured as a single entity

** LOD (SMZ + SMR) = 15 ppb; LOD (SQ) = 10 ppb

Withdrawal period calculations were made using a statistical tolerance limit algorithm applied to the depletion data for sulfaquinoxaline, the residue depleting most slowly in the livers of chickens and turkeys. A 14-day withdrawal period is assigned for the use of Triple Sulfa in both chickens and turkeys. The 14-day withdrawal period is consistent with the withdrawal period calculations and is protective of the public health.

F. Regulatory Method

The regulatory analytical method for detection of residues of the drug is a multiresidue thin layer fluorometric scanning densitometry procedure. This method is found in the Analytical Chemistry Laboratory Guidebook (Residue Chemistry) USDA/FSIS/Science & Technology, Winter, 1991.

G. Tolerances for Residues:

The codified tolerance for negligible residues of sulfaquinoxaline in uncooked edible tissues of chickens and turkeys is 0.1 ppm (21 CFR 556.685).

The codified tolerance for negligible residues of sulfamethazine in uncooked edible tissues of chickens and turkeys is 0.1 ppm (21 CFR 556.670).

Using the official analytical method, residues of sulfamethazine and sulfamerazine co-elute and cannot be quantified individually. There are no products containing only sulfamerazine approved for use in chickens and turkeys. Therefore, a tolerance for sulfamerazine residues in chickens and turkeys tissues is not established at this time.

Regulatory Method for Residues:

The analytical method of detection for sulfas in tissue uses a thin layer-densitometric procedure. The method is found in the Official Methods of Analysis of the Association of Official Analytical Chemists, 16th Edition, 1997. The method is available from the Center for Veterinary Medicine, Food and Drug Administration, HFV-199, 7500 Standish Place, Rockville, Maryland 20855.

5. AGENCY CONCLUSIONS:

This NADA submitted under section 512(b) of the Federal Food, Drug, and Cosmetic Act satisfies the requirements of the act and demonstrates that POULTRY-SULFA Soluble Powder, when used under its proposed conditions of use, is safe and effective for its labeled indications.

5. ATTACHMENTS:

Labeling for NADA 100-094:

Packet 195 grams

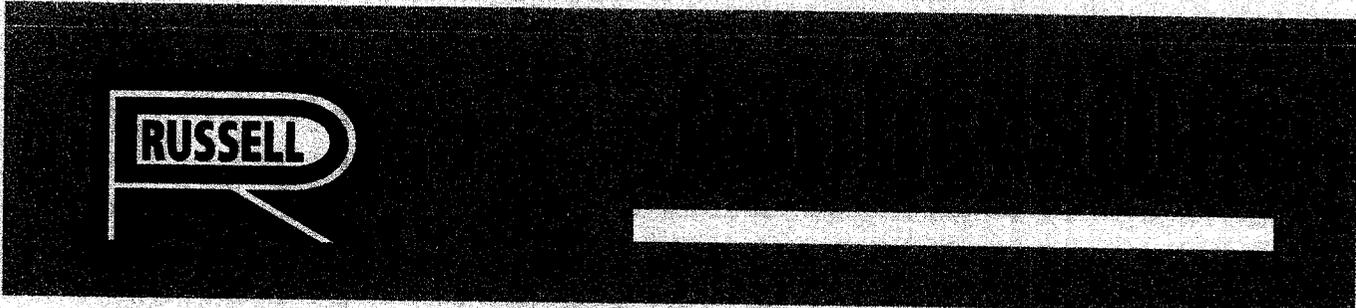
**Warning
(Human Food)**
Do not treat chickens or turkeys within 14 days of slaughter for food.
Do not medicate chickens or turkeys producing eggs for human consumption.

Directions for Use:

	PROPORTIONER SOLUTION (1 oz/gal)	TANK MIX
.04% Solution	Add one pack to 1 gallon (3.8 liters)	Add one pack to 128 gallons
.025% Solution	Add one pack to 1.6 gallons (6.1 liters)	Add one pack to 206 gallons

MAKE FRESH SOLUTION DAILY. If improvement is not noted in 72 hours, consult a poultry veterinarian or poultry diagnostic laboratory for diagnosis. During treatment use only medicated water unless otherwise directed. For control of disease outbreaks medication should be initiated as soon as diagnosis is determined. Treated animals must actually consume enough medicated water to provide a therapeutic dose. Do not mix or administer in galvanized containers. Dispose of any waste or unused portions properly.

PRECAUTION: May cause toxic reactions unless drug is evenly mixed in water at dosages indicated and used according to label directions.



**Sulfonamide
For Oral Veterinary Use Only
For Use In Drinking Water Only**

As an aid in the control of coccidiosis and acute fowl cholera in chickens and acute fowl cholera and coccidiosis in turkeys, when caused by pathogens susceptible to sulfamethazine, sulfamerazine and sulfaquinoxaline.

**ANTIMICROBIAL
SOLUBLE POWDER
For Use In Chickens and Turkeys**

THIS PACKET CONTAINS:
78 grams Sodium Sulfamethazine Activity
78 grams Sodium Sulfamerazine Activity
39 grams Sodium Sulfaquinoxaline Activity

CAUTION: Federal law prohibits the extralabel use of this product in lactating dairy cattle.

Keep Out of Reach of Children



Restricted Drug
Use only as directed (California)

NADA 100-094, Approved by FDA

PoultrySulfa is a trademark of AlphaPharma Inc.
The Russell logo is a registered trademark of AlphaPharma Inc.

8001BF 0402



AlphaPharma Inc.
One Executive Drive, Fort Lee, New Jersey 07024

DIRECTIONS

Acute Fowl Cholera - TURKEYS AND CHICKENS: As an aid in the control of acute fowl cholera caused by *Pasteurella multocida* susceptible to sulfamethazine, sulfamerazine and sulfaquinoxaline. Provide medicated water (.04% solution) for 2-3 days. If disease recurs, repeat treatment.

Coccidiosis - TURKEYS: As an aid in the control of coccidiosis caused by *Eimeria meleagridis* and *E. adenoides* susceptible to sulfamethazine, sulfamerazine and sulfaquinoxaline. Provide medicated water (.025% solution) for 2 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days. Repeat if necessary. **DO NOT CHANGE LITTER.**

Coccidiosis - CHICKENS: As an aid in the control of coccidiosis caused by *Eimeria tenella* and *E. necatrix* susceptible to sulfamethazine, sulfamerazine and sulfaquinoxaline. Provide medicated water (.04% solution) for 2-3 days, then plain water for 3 days, then medicated water (.025% solution) for 2 days. If bloody droppings appear, repeat at .025% level for 2 more days. **DO NOT CHANGE LITTER.**



then in its possession, or under its control, including claims for any funds unpaid or property not delivered at the time of such termination.

(b) The said trustees shall: (1) Continue in such capacity until discharged by the Secretary; (2) from time to time account for all receipts and disbursements and deliver all property on hand, together with all books and records of the committee and of the trustees, to such persons as the Secretary may direct; and (3) upon the request of the Secretary, execute such assignments or other instruments necessary or appropriate to vest in such person, full title and right to all of the funds, property, and claims vested in the committee of the trustees pursuant thereto.

(c) Any person to whom funds, property, or claims have been transferred or delivered, pursuant to this section, shall be subject to the same obligation imposed upon the committee and upon the trustees.

§—65 Effect of termination or amendment.

Unless otherwise expressly provided by the Secretary, the termination of this part or of any regulation issued pursuant to this part, or the issuance of any amendment to either thereof, shall not (a) affect or waive any right, duty, obligation, or liability which shall have arisen or which may thereafter arise in connection with any provision of this part or any regulation issued under this part, or (b) release or extinguish any violation of this part or of any regulation issued under this part, or (c) affect or impair any rights or remedies of the Secretary or of any other person with respect to any such violation.

§—66 Duration of immunities.

The benefits, privileges, and immunities conferred upon any person by virtue of this part shall cease upon its termination, except with respect to acts done under and during the existence of this part.

§—67 Agents.

The Secretary may, by designation in writing, name any officer or employee of the United States, or name any agency or division in the United States Department of Agriculture, to act as the Secretary's agent or representative in connection with any of the provisions of this part.

§—68 Derogation.

Nothing contained in this part is, or shall be construed to be, in derogation or in modification of the rights of the Secretary or of the United States (a) to

exercise any powers granted by the act or otherwise, or (b) in accordance with such powers, to act in the premises whenever such action is deemed advisable.

§—69 Personal liability.

No member or alternate member of the committee and no employee or agent of the committee shall be held personally responsible, either individually or jointly with others, in any way whatsoever, to any person for errors in judgment, mistakes, or other acts, either of commission or omission, as such member, alternate, employee or agent, except for acts of dishonesty, willful misconduct, or gross negligence.

§—70 Separability.

If any provision of this part is declared invalid or the applicability thereof to any person, circumstance, or thing is held invalid, the validity of the remainder of this part or the applicability thereof to any other person, circumstance, or thing shall not be affected thereby.

***§—71 Counterparts.**

This agreement may be executed in multiple counterparts and when one counterpart is signed by the Secretary, all such counterparts shall constitute, when taken together, one and the same instrument as if all signatures were contained in one original.

***§—72 Additional parties.**

After the effective date thereof, any handler may become a party to this agreement if a counterpart is executed by him or her and delivered to the Secretary. This agreement shall take effect as to such new contracting party at the time such counterpart is delivered to the Secretary, and the benefits, privileges and immunities conferred by this agreement shall then be effective as to such new contracting party.

***§—73 Order with marketing agreement.**

Each signatory hereby requests the Secretary to issue, pursuant to the act, an order providing for regulating the handling of kiwifruit in the same manner as is provided for in this agreement.

Copies of this recommended decision may be obtained from: William J. Doyle, Room 2532-S, U.S. Department of Agriculture, Washington, D.C. 20250, (202) 447-5975 or William Blackburn, P.O. Box 214287, Sacramento, California 95821, (916) 484-4855.

Signed at Washington, D.C., on June 29, 1984.

William T. Manley,
Deputy Administrator, Marketing Program Operations.

[FR Doc. 84-17732 Filed 7-3-84; 8:45 am]
BILLING CODE 3410-02-M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 510

[Docket No. 84N-0036]

Notice to Sponsors of Drugs Containing Sulfamethazine, Sulfamethoxazole, Sulfamerazine, Sulfathiazole, Sulfapyridine, or Sulfanilamide for Oral, Injectable, Intramammary, or Intrauterine Use in Food-Producing Animals: Termination of Interim Marketing; Data Submission Requirements

AGENCY: Food and Drug Administration.
ACTION: Notice of intent.

SUMMARY: The Food and Drug Administration (FDA) in announcing plans for the termination of interim marketing under § 510.450 (21 CFR 510.450) for drugs containing sulfamethazine, sulfamethoxazole, sulfamerazine, sulfathiazole, sulfapyridine, or sulfanilamide for oral, injectable, intramammary, or intrauterine use in food-producing animals. FDA requests that sponsors of new animal drug applications (NADA's) covered by interim marketing submit a statement of intent with regard to continued marketing of their products and that sponsors submit data, revised labeling, and other information necessary for approval of an NADA. After evaluation of that information with respect to each NADA, FDA will either approve the NADA or publish a notice of opportunity for hearing on denial of approval. FDA will also publish at that time a proposal to revoke § 510.450.

This notice lists firms that have submitted NADA's for sulfonamide-containing drugs under the provisions of § 510.450 and sets forth data to be submitted for approval of NADA's, together with suggested label revisions for such products.

This notice also provides guidance to persons who wish to submit NADA's for the marketing of drugs containing these six sulfonamides for oral, injectable, intramammary, or intrauterine use in food-producing animals. Such NADA's

must be approved unconditionally before marketing may begin.

DATE: Sponsors must submit a letter of intent by October 3, 1984 and data, revised labeling, and other information by October 7, 1985.

ADDRESS: Submission to the Center for Veterinary Medicine (formerly Bureau of Veterinary Medicine) (HFV-133), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857.

FOR FURTHER INFORMATION CONTACT: Charles Haines, Center for Veterinary Medicine (HFV 133), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301-443-3410.

SUPPLEMENTARY INFORMATION:

I. Background Information and Scope of This Notice

Section 510.450 was initially promulgated as § 135.102 (21 CFR 135.102) in the Federal Register of October 23, 1970 (35 FR 16538). The regulation established as an interim measure a 5-day withdrawal period for poultry and a 10-day withdrawal period for all other food-producing animals. The regulation applied to all sulfonamide-containing drugs for use in food-producing animals and required sponsors of NADA's for sulfonamide products to submit within 1 year (by October 22, 1971) residue depletion information to permit, based on such data, the establishment of appropriate withdrawal periods. FDA promulgated the regulation because new information available to the agency indicated that sulfonamide drug residues may be present in edible tissues of food-producing animals slaughtered within 10 days of the last treatment.

In the Federal Register of July 22, 1974 (39 FR 26633), FDA revised the regulation and deemed all sulfonamide drugs to be new animal drugs for which approved NADA's are required. Firms then marketing products containing sulfonamide drugs that were not the subject of approved NADA's were permitted to continue marketing the products on an interim basis, provided they submitted NADA's by January 20, 1975, and made a commitment to conduct and submit the results of 90-day feeding studies (toxicity studies) in a rodent and nonrodent species. Sponsors who did not meet the January 20, 1975 deadline have not been permitted interim marketing privileges.

FDA required the feeding studies because of concerns about thyroid toxicity. In addition, sponsors were required to develop more specific and sensitive regulatory methodology for detecting sulfonamide residues if existing methodology were found to be

inadequate to monitor the tolerances for residues established following evaluation of those feeding studies. The results of those feeding studies were to be submitted by July 22, 1975. This date was extended to October 22, 1975 (September 19, 1975; 40 FR 43213). The feeding studies and the new methodology were to be submitted by sponsors of approved NADA's that had not already submitted such information as well as by those who had been given interim marketing privileges.

In the Federal Register of May 5, 1978 (43 FR 19385), FDA further revised the regulation to add the requirement that products containing sulfamethazine intended for use in swine feed or drinking water be labeled with a 15-day withdrawal time.

In the Federal Register of January 28, 1983 (48 FR 3962), FDA amended § 510.450 to require a 10-day withdrawal period for all sulfonamides for all animal species (except for the 15-day withdrawal for sulfamethazine used in swine feed or drinking water), unless a specific withdrawal period, based on data submitted and found satisfactory, had been established. FDA stated that it would reconsider the 10- or 15-day withdrawal times as part of the agency's evaluation of the human food safety of sulfonamides.

By January 20, 1975, 28 firms had submitted 229 NADA's requesting interim marketing under § 510.450. At present 190 NADA's cover interim marketing of sulfonamide products under § 510.450; the remaining NADA's were either withdrawn by their sponsors, or terminated by FDA for failure to submit required data.

This notice describes the requirements that must be met before FDA will give unconditional approval to the interim-marketing NADA's. These requirements also apply to persons who wish to submit NADA's for the marketing of these sulfonamides for identical claims. Finally, this notice discusses the status of the NADA's that were approved before the adoption of § 510.450.

Although § 510.450 included within its scope all sulfonamide-containing drugs, interim-marketing NADA's included products containing only six sulfonamides: sulfamethazine, sulfaquinoxaline, sulfamerazine, sulfathiazole, sulfapyridine, and sulfanilamide. Sponsors of NADA's submitted in the future for identical claims for these sulfonamides for oral, injectable, intramammary, or intrauterine use must meet the requirements stated in this notice. Sulfonamides other than these six are not within the scope of this notice.

NADA's for other marketed sulfonamides have been approved unconditionally and are in full compliance with the human food safety requirements of § 510.450.

Of the six sulfonamides listed above, there are several unconditionally approved NADA's for currently marketed sulfamethazine and sulfaquinoxaline products. All approved NADA's for sulfamethazine as the sole drug are in full compliance with the requirements stated in this notice, including labeling claims. Approved sulfaquinoxaline products are in compliance with § 510.450 except for some human food safety requirements. FDA is working with the sponsors of those products to satisfy remaining data requirements. The data must be submitted not later than 15 months from the date of this notice.

II. Human Food Safety

Section 510.450 established three requirements concerning human food safety data: (1) Residue depletion studies, (2) 90-day subchronic toxicity studies (feeding studies), and (3) a regulatory methodology capable of monitoring residues at the established tolerance.

The effect of sulfonamide drugs on the thyroid was the major human safety concern. Based primarily on a published study on the effect of sulfamethoxazole on the thyroid (Ref. 1) and summaries of data included as proprietary information in NADA's, FDA concluded that the degree of thyroid response to exposure to sulfonamide drugs should be an important criterion in the evaluation of sulfonamide toxicity and the establishment of "no-effect" levels. Consequently, all sulfonamide drug sponsors were required to submit for each drug the results of 90-day subchronic toxicity studies in one rodent and one nonrodent species, which were adequate to support a tolerance for negligible residues.

The required toxicity studies were submitted on behalf of sponsors of all 190 NADA's for sulfonamide compounds currently marketed under § 510.450, and sponsors with previous approvals. With the exception of sulfaquinoxaline, the toxicity data support a tolerance of 100 parts per billion (ppb) (0.1 part per million (ppm)) for residues. The data for sulfaquinoxaline support a tolerance of 25 ppb (0.025 ppm). These data are proprietary. Sponsors of NADA's submitted in the future must either have authority to reference the appropriate master file containing the data or submit original data.

Residue depletion data for each species have been submitted for only a few of the 190 NADA's pending under § 510.450. These data, which are necessary to permit the assignment of preslaughter withdrawal periods that will ensure that edible products are free of above-tolerance sulfonamide residues, must be submitted for each NADA and must be collected by using a regulatory method reliable at least to the tolerance for residues for the drug in question. The Bratton-Marshall method or modifications to that method traditionally have been used to collect residue depletion data for sulfonamide residues in tissue. The agency will continue to accept data collected with this methodology, provided the data are supported by adequate recoveries of sulfonamides added to tissues under study. The results with the Tishler-A method (Ref. 2) appear to be slightly more reliable than those obtained by other modified Bratton-Marshall methods, at least for sulfamethazine, sulfathiazole, and sulfaquinoxaline. For determination of sulfamethazine the gas chromatography/mass spectrometric (GC/MS) assay developed by the U.S. Department of Agriculture (USDA) (Ref. 3) and the GC method of Manuel and Steller (Ref. 4) have been studied collaboratively in FDA and USDA laboratories and found to be acceptable (Ref. 5).

In 1979, FDA reevaluated its requirement for the confirmatory test for the Bratton-Marshall method and concluded that it would be wasteful for each sponsor to develop its own confirmatory test. The agency will complete the development of a standard mass spectrometry based confirmatory procedure.

The human food safety requirements for these interim marketed sulfonamide drugs do not reflect current approval standards. As discussed in section III below, the sulfonamide products covered by this notice are within the scope of the National Academy of Sciences/National Research Council (NAS/NRC) Drug Efficacy Study Implementation (DESI) program. (The DESI program only covered effectiveness and safety to the target animal.) FDA has in the past not required the sponsors of drug products that are identical or similar to DESI-reviewed products to meet current human food safety standards.

The human food safety requirements stated above apply to interim-marketed sulfonamide products for the DESI-reviewed claims listed in section VII below. These requirements also apply to sponsors of future NADA's for these six

sulfonamide products with DESI-reviewed claims. Sponsors of interim marketing and future NADA's with different claims will be required to meet the current human food safety requirements. In the alternative, such sponsors may request hearings on denial of approval.

References

The following information has been placed in the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857, and may be seen by interested persons from 9 a.m. to 4 p.m., Monday through Friday.

1. "Observations on the Thyroid Gland in Rats Following the Administration of Sulfamethoxazole and Trimethoprim." *Toxicology and Applied Pharmacology*, 24:351-363, 1973.
2. Tishler, F., J. L. Sutter, J. N. Bathnish, and H. E. Hagman. *Journal of Agricultural and Food Chemistry*, 16:50-53, 1968.
3. Suhre, F., R. Simpson, and J. Shafer. *Journal of Agricultural and Food Chemistry*, 29:727, 1981.
4. Manuel, F. J., and W. A. Steller. *Journal of Association of Official Analytical Chemists*, 64:794, 1981.
5. Malanoski, A. J., C. J. Barnes, and T. Fazio. *Journal of Association of Official Analytical Chemists*, 64:1366, 1981.

III. Safety of the Target Animal and Effectiveness

This section sets forth the effectiveness and target animal safety data needed for the approval of NADA's for sulfonamide products within the scope of the DESI program. These requirements apply to NADA's that are covered by interim marketing privileges under § 510.450, and to future NADA's with claims not listed in section VII below will have to be supported by adequate and well-controlled investigations before they can be approved.

Sulfamethazine, sulfaquinoxaline, sulfamerazine, and sulfathiazole were evaluated as part of the DESI program. The products were evaluated as "probably effective" and on the basis of published literature and labeling revisions were moved to the "effective" category by FDA for the claims and species listed below in section VII.

The DESI-reviewed sulfamethazine and sulfaquinoxaline products listed below are presently the subject of approved NADA's and are marketed for these uses. Sponsors of NADA's for identical or similar products have several options, as discussed in detail below, for submitting data to show bioequivalency of their products with the appropriate DESI-reviewed drug.

Sponsors may submit data from blood level studies comparing their products with the appropriate DESI-reviewed product. In the alternative, sponsors may establish bioequivalency by demonstrating the bioavailability (serum or plasma of blood) of their products, or by demonstrating through in vivo clinical studies the effectiveness of their products for one of the indications that will be on the label.

Normally the agency would require the sponsors of products that are identical or similar to the DESI-reviewed sulfamethazine and sulfaquinoxaline products to establish bioequivalency through blood level comparisons with the DESI-reviewed product. However, as discussed below, sponsors of the other four sulfonamides within the scope of this notice must by necessity conduct bioavailability or clinical studies. Therefore, the agency has decided in the interest of fairness to made these options available to sulfamethazine and sulfaquinoxaline sponsors. (The discussion below with respect to cattle, swine, sheep, and rabbits does not mention clinical studies because it is anticipated that bioavailability blood level studies will be more easily accomplished. Sponsors may conduct clinical studies, however. Also, as explained below, bioavailability data are not appropriate for poultry.)

Because the sulfathiazole and sulfamerazine products reviewed by NAS/NRC are no longer being marketed, it will not be possible for sponsors of identical or similar products to demonstrate bioequivalency by comparison with the DESI-reviewed products. Although products containing sulfapyridine and sulfanilamide were marketed for many years before 1962, the products were not the subject of approved NADA's and were not submitted for review by NAS/NRC. In view of the existence of interim-marketing privileges for drug products containing these sulfonamides, and in the interest of applying the same general data submission requirements to all sponsors of interim-marketing sulfonamide NADA's FDA has concluded that the products listed below should be treated as having been reviewed by NAS/NRC as part of the DESI program. The agency has reviewed publicly available literature and has concluded that these two drugs are safe to the target animal and effective for the uses listed below. (A list of these references is available at the Dockets Management Branch (address above).) Sponsors of NADA's for these four sulfonamides should submit, as discussed below, either bioavailability

(blood level) data or data from in vivo clinical studies.

FDA has concluded that NADA's for drug products containing more than one sulfonamide will comply with the Center for Veterinary Medicine's combination drug policy (21 CFR 514.1(b)(8)(v)) without submission of data from studies that compare the combination of sulfonamides with the individual sulfonamides. Because all sulfonamides have the same mechanism of action, each individual sulfonamide can be expected to contribute to the total effect of the combination drug.

Different data requirements apply depending on species. Regarding the animal species and uses listed below, the agency has divided all species into two groups. One group of species includes cattle, swine, sheep, and rabbits; the other group includes chickens and turkeys. Satisfactory bioequivalency, bioavailability (blood level), or clinical studies conducted in one animal species will be sufficient to satisfy that requirement for that specific drug product with respect to other animal species.

Adequate and well-controlled studies that meet the requirements of the act and regulations will be required for any claims, species, or conditions of use not listed below. FDA will comment, upon request, on any protocols proposed to establish safety and effectiveness. Questions should be addressed to the contact person listed above.

The subsections below describe in general terms the characteristics of the bioequivalency, bioavailability, or clinical studies that are required. Sponsors are advised to consult the Center for Veterinary Medicine through the contact person named above for additional guidance.

A. Cattle, Swine, Sheep, and Rabbits

1. Sulfamethazine and sulfaquinoxaline: Data to show bioequivalency with the DESI-reviewed product (47 FR 25320; June 11, 1982 and 48 FR 3962; January 28, 1983) should be obtained using a 10 x 10 crossover study with a resting period of 2 to 4 weeks. In the alternative, FDA will accept bioavailability data obtained using a minimum of 10 animals and demonstrating sulfonamide blood levels (serum or plasma of blood) of 8-milligram (mg) percent or more. It is appropriate scientifically to conclude that a sulfonamide drug is bioequivalent to the DESI-reviewed drug, based only on bioavailability data from the test drug, because the therapeutic blood levels of sulfonamides in these species are well established in the published scientific literature (Bevill, R. F., and W.

G. Huber, *Veterinary Pharmacology and Therapeutics*, L. M. Jones, N. H. Booth, and L. E. McDonald, editors, p. 903; Iowa State University Press, 4th ed., 1977).

2. Sulfanilamide sulfamerazine, and sulfapyridine: Bioavailability data should be obtained using a minimum of 10 animals to demonstrate sulfonamide blood levels of 8-mg percent or more.

3. Sulfathiazole: Demonstrated blood levels of 2-mg percent or more using a minimum of 10 animals will be acceptable.

4. Products containing sulfamethazine alone intended solely for intravenous administration are not subject to the requirement for bioequivalency or bioavailability data if the active drug ingredient is in the same solvent and concentration as the DESI-reviewed product (46 FR 62054; December 22, 1981). The sponsor of such a product must submit satisfactory data demonstrating that its product and the DESI-reviewed product are pharmaceutically equivalent. Although the products need not contain the same inactive ingredients, both products must supply equivalent amounts of the active drug ingredient (the same salt or ester of the same therapeutic moiety in the same solvent).

5. Sponsors of pending NADA's for sulfonamide products containing two or more sulfonamides must submit bioavailability data demonstrating sulfonamide blood levels (serum or plasma of blood) of 8-mg percent or more. A minimum of 10 animals should be used in determining such blood levels.

B. Chickens and Turkeys

1. Sulfamethazine or sulfaquinoxaline alone in the form of a drinking water solution or soluble powder: A study to show bioequivalency with the DESI-reviewed drug (47 FR 25320; June 11, 1982 and 48 FR 3962; January 28, 1983) should use 28 pens of 10 chickens or turkeys between 3 and 4 weeks of age. An extra 10 birds receiving the same diet and untreated water should be sacrificed to determine "background" sulfonamide blood levels and to generate recovery data. The dosage and length of treatment should be identical to those listed below for the drug product. At 2, 4, 8, 12, 18, 24, and 48 hours after dosing, two pens per treatment group should be selected randomly and the birds sacrificed and samples collected by exsanguination. Blood levels over time should be compared by analyses of variance with regard to areas under the curves, average peak heights, and overall split-plot analysis in time. The last analysis is intended to compare overall mean blood

levels as well as the slopes of the blood level curves.

In the alternative, the results of a clinical study demonstrating the effectiveness of the drug against one disease claimed in the suggested labeling may be submitted. The study should consist of 80 birds in 8 experimental batteries of 10 birds each. All of the birds should be infected, with one-half of the battery birds medicated and the other half not medicated. FDA suggests that protocols be submitted together with the proposed method of statistical analysis for FDA comment before initiating the studies. FDA is providing for a clinical study rather than a bioavailability study because of the lack of adequate data concerning therapeutic blood levels of sulfonamides in poultry.

2. Sulfamerazine alone in the form of a drinking water solution or soluble powder: No NADA's for such products were filed under the provisions of § 510.450. Future sponsors of NADA's with the acceptable claims listed below should submit the results of a clinical study, as discussed in section III.B.1.

3. Sulfathiazole, sulfanilamide, and sulfapyridine: No NADA's were filed for any of these products alone for use in chickens or turkeys under the provisions of § 510.450. FDA does not have any data supporting the safe and effective use of these sulfonamides in poultry. Sponsors who desire to submit future NADA's for these products will have to submit data from adequate and well-controlled studies that meet the requirements of the act and regulations, and are advised to contact the contact person listed above.

4. Combinations of sulfamerazine, sulfamethazine, and sulfaquinoxaline: The results of a clinical study, as discussed under section III.B.1. above, should be submitted.

IV. Other Data Required for Approval of NADA's

Information required by § 514.1 concerning manufacturing facilities and controls, and stability data should be submitted by all sponsors. Sponsors of interim marketing NADA's should update information that is not current. Sponsors may be exempt from the submission of certain environmental data in accordance with § 25.1(f)(2) (21 CFR 25.1(f)(2)). Environmental impact analysis regarding manufacturing processes is required in accordance with § 25.1(g)(2) (21 CFR 25.1(g)(2)). A satisfactory freedom of information summary must be submitted in accordance with § 514.11(e)(2)(ii) (21 CFR 514.11(e)(2)(ii)).

V. Termination of Interim Marketing

This action is part of the agency's effort to terminate in an orderly and timely fashion the interim marketing privileges of drugs under § 510.450. Sponsors of such drugs must submit a statement of intent by October 3, 1984, and the data described above and revised labeling by October 7, 1985. After that time, NADA's that are deficient in one or more categories will be subject to prompt administrative action.

After the agency has reviewed the data and revised labeling submitted in response to this notice, it will publish a proposal to revoke § 510.450. FDA will take action on each NADA covered by interim marketing, and will either approve it or publish a notice of opportunity for hearing on denial of approval (21 CFR 514.111). Hearings will be held if justified. After a final rule revoking § 510.450 becomes effective, any sulfonamide-containing drug on the market intended for use in food-producing animals that is not the subject of an approved NADA will be in violation of the act and subject to regulatory action, unless covered by a statutorily provided exception to the requirement of an NADA.

VI. List of Firms Having NADA's Subject to § 510.450

The firms listed below are sponsors of NADA's for products being marketed under § 510.450. Veterinary Laboratories, Inc., submitted NADA's under its own name and has assumed the sponsorship of NADA's formerly held by Veterinary Products Corp.

1. Cadco, Inc., P.O. Box 3599, 10100 Douglas Ave., Des Moines, IA 50322.
2. Fort Dodge Laboratories, Fort Dodge, IA 50501.
3. Franklin Laboratories, 1777 South Bellaire St., Denver, CO 80222.
4. Frank Veterinary Laboratories, 7239 Washington Ave. South, Edina, MN 55435.
5. International Multifoods Corp. (formerly Osborn Laboratories), 1200 Multifoods Bldg., 8th and Marquette Sts., Minneapolis, MN 55402.
6. Masti-Kure Products Co., Inc., 166 Yantic St., Norwich, CT 06360.
7. Medico Industries, Inc., Elkan Estates, P.O. Box 338, Elwood, KS 66024.
8. Merck Sharp & Dohme Research Laboratories, Rahway, NJ 07065.
9. M & M Livestock Products Co., Eagle Grove, IA 50533.
10. Norden Laboratories, Inc., Lincoln, NE 68501.
11. Pfizer, Inc., 235 East 42d St., New York, NY 10017, (NADA's formerly held by Rachele Laboratories, Inc.).

12. Phillips Roxane, Inc., 2621 North Belt Highway, St. Joseph, MO 64502.
13. Quality Plus Products Corp., 2116 8th Ave. South, Fort Dodge, IA 50501.
14. Ralston Purina Co., Checkerboard Square, St. Louis, MO 63199.
15. Rhone-Poulenc, Inc., (formerly Hess & Clark Division of Rhodia, Inc.), P.O. Box 125, Black Horse Lane, Monmouth Junction, NJ 08852.
16. I. D. Russell Co. Laboratories, 2463 Harrison St., Kansas City, MO 64108.
17. Salsbury Laboratories, Charles City, IA 50618.
18. Syntex Laboratories, Inc., (Syntex/Diamond Laboratories), 3401 Hillview Dr., Palo Alto, CA 94304.
19. Vet-A-Mix Laboratories, Inc., P.O. Box 86, Shenandoah, IA 51601.
20. Veterinary Laboratories, Inc., (formerly Veterinary Products Corp.), 12340 Santa Fe Dr., Lenexa, KS 66215.
21. Vineland Laboratories, 2285 East Linder Ave., Vineland, NJ 08360.
22. Vista Laboratories, Inc., Christiansted, St. Croix, Virgin Islands.
23. Wendt Laboratories, Inc., 100 Nancy Dr., Belle Plaine, MN 56011.
24. Veterinary Laboratories, Inc., (formerly Wittney & Co.), 4655 Colorado Blvd., Denver, CO 80218.

VII. Drug Products Containing One or More Sulfonamides

Listed below in this section are the products containing one or more of the sulfonamides within the scope of this notice, without other active ingredients, that have been reviewed by FDA, along with the claims that FDA has concluded are effective. The names of the sponsors, NADA numbers, and product names for products currently being marketed under § 510.450 are also listed. Drug products containing sulfonamides and other ingredients are listed in section VIII.

For combination drugs containing two or more sulfonamides, the acceptable disease claims are limited to those that are common to the acceptable claims for the individual sulfonamides in the combination. In the list of drug products below, a combination product appears under the heading of the individual sulfonamide in the combination product with the fewest claims.

The existing labeling of some interim-marketed products containing more than one sulfonamide does not conform to the acceptable claims for the particular combination of sulfonamides. These products are indicated with a (+) below. Sponsors may reformulate all sulfonamide-containing products that are covered by interim marketing under § 510.450. For example, sulfathiazole could be removed from a product containing sulfamerazine.

sulfamethazine, sulfathiazole, and sulfaquinoxaline that is intended for use in poultry, because FDA has concluded that poultry is not an acceptable species for sulfathiazole. In the alternative, poultry could be deleted from the list of intended species. If a product is reformulated, the sponsor should submit the required information for the reformulated product within the time permitted by this notice.

If the sponsor of an NADA under § 510.450 does not agree with FDA's conclusion that reformulation or labeling changes are necessary, the sponsor should either submit complete safety and effectiveness data, as discussed above, or request a hearing on denial of approval. Sponsors of future NADA's for combination products with claims that are not limited to those that FDA has concluded are acceptable will need to submit complete safety and effectiveness data.

A. Sulfamethazine**1. Accepted disease claims:****Species**

Cattle: For the treatment of bovine respiratory disease complex (shipping fever complex) associated with *Pasteurella* spp.; bacterial pneumonia associated with *Pasteurella* spp.; necrotic pododermatitis (foot rot) and calf diphtheria caused by *Fusobacterium necrophorum*. Colibacillosis (bacterial scours) caused by *Escherichia coli*; coccidiosis caused by *Eimeria bovis* and *E. zurnii*; acute mastitis caused by *Streptococcus* spp.; acute metritis caused by *Streptococcus* spp.

Swine: For the treatment of bacterial pneumonia associated with *Pasteurella* spp.; porcine colibacillosis (bacterial scours) caused by *Escherichia coli*.

Sheep: For the treatment of pasteurellosis caused by *Pasteurella* spp.; bacterial pneumonia associated with *Pasteurella* spp.; colibacillosis (bacterial scours) caused by *Escherichia coli*. For the control and treatment of coccidiosis caused by *Eimeria ovinoidalis* (*Eimeria ninakohlyakimovae*).

Chickens: For the control of infectious coryza caused by *Hemophilus gallinarum*; coccidiosis caused by *Eimeria tenella* and *E. necatrix*; acute fowl cholera caused by *Pasteurella multocida*; pullorum disease caused by *Salmonella pullorum*.

Turkeys: For the control of coccidiosis caused by *Eimeria meleagrimitis*, *E. adenoides*.

Dosage

Cattle, sheep, and swine (soluble powder and drinking water solution 12.5 percent)—oral.

Cattle and sheep (bolus). Initially 1 1/2 grain per pound body weight (equivalent to 97.2 mg per pound body weight) followed by 3/4 grain per pound body weight (equivalent to 48.6 mg per pound body weight) every 24 hours. Do not exceed 5-day treatment. Dosage can be rounded to initially 100 mg per pound body weight, followed by 50 mg per pound body weight every 24 hours.

Cattle (injectable solution 25 percent). Initially 1 1/2 grain per pound (equivalent to 97.2 mg per pound body weight) followed by 3/4 grain per pound (equivalent to 48.6 mg per pound body weight) every 24 hours. Dosage can be rounded to initially 100 mg per pound body weight followed by 50 mg per pound body weight every 24 hours.

Chickens and turkeys (soluble powder). Prepare a 12.0-percent stock solution. Add 1 fluid ounce to each gallon of drinking water or one gallon of the stock solution to 128 gallons of drinking water. This will provide a recommended dosage of approximately 58 to 85 mg per pound per day of the drug in chickens and approximately 50 to 124 mg per pound per day in turkeys depending upon the dosage, age, and class of chicken or turkeys, ambient temperature, and other factors.

Indications	Control
Infectious coryza (chickens).	Medicate for 2 consecutive days.
Acute fowl cholera (chickens).	Medicate for 6 consecutive days.
Pulverum disease (chickens).	Medicate for 6 consecutive days.
Coccidiosis (turkeys and chickens).	Medicate for 2 days then reduce drug concentration to one half above 4 additional days.

Drinking Water Solution 12.5%. Add 1 fluid ounce to each gallon of drinking water or 1 gallon of drinking water solution 12.5 percent to 128 gallons of drinking water. This will provide approximately 61 to 89 mg per pound per day of the drug in chickens and approximately 53 to 130 mg per pound per day in turkeys, depending upon dosage, age, and class of chickens or turkeys, ambient temperature, and other factors.

Indications	Control
Infectious coryza	Medicate for 2 consecutive days.
Acute fowl cholera	Medicate for 6 consecutive days.
Pulverum disease	Medicate for 6 consecutive days.
Coccidiosis	Medicate for 2 days then reduce drug concentration to one half above 4 additional days.

2. NADA numbers, sponsors, and product names for sulfamethazine alone:

NADA No.	Sponsor	Product name
48-693	Vet-A-Mix Laboratories.	Veta-Meth Tablets.
49-790	Vet-A-Mix Laboratories.	Veta-Meth Solution 12.5%.
99-846	Salsbury Laboratories.	Sodium Sulfamethazine 12 1/4%.
99-847	Salsbury Laboratories.	Sulfamethazine Soluble Powder.
99-866	Veterinary Laboratories, Inc. (formerly Vet Products Corp.).	Sulfamethazine 2.5 Gm Boluses.
99-904	Veterinary Laboratories.	Sulfamethazine 15 Grams Boluses.
99-910	Veterinary Laboratories.	Sulfamethazine Sodium Solution 25%.
99-922	Quality Plus Products.	Sulfamethazine Boluses 15 Grams.
99-923	Quality Plus Products.	Sulfamethazine Powder.
99-925	Quality Plus Products.	Sodium Sulfamethazine 12 1/4%.
99-930	Quality Plus Products.	Sulfamethazine 2.5 Gms.
99-933	Quality Plus Products.	Sodium Sulfamethazine 12 1/4%.
99-936	Quality Plus Products.	Sulfamethazine Boluses.
99-937	Quality Plus Products.	Quality 25% Sodium Sulfamethazine.
99-938	Quality Plus Products.	Sodium Sulfamethazine.
99-943	International Multifoods (formerly Osborn Laboratories).	Sulfamethazine.
99-953	International Multifoods Corp. (formerly Osborn Laboratories).	Metzol 25%.
99-956	International Multifoods Corp. (formerly Osborn Laboratories).	Sodium Sulfamethazine.
99-962	Mesti-Kure Products Co., Inc.	Sulfamethazine Bolus.
99-969	Quality Plus Products Corp.	Sulfamethazine Sodium Injectable.
99-977	Quality Plus Products Corp.	Sulfamethazine Boluses 5 Grams.
99-998	Vimeland Laboratories.	Liquid Vimethazine—25.
100-008	Medico Industries, Inc.	SM-25 Solution.
100-011	Medico Industries, Inc.	SM-25, 25% Solution Sulfamethazine Sodium.
100-014	Medico Industries, Inc.	Sodium Sulfamethazine 12 1/4%.
100-024	Veterinary Laboratories, Inc. (formerly Witney & Co.).	Sulfamethazine Suits Solution 25%.
100-028	Vimeland Laboratories.	Vimethazine.
100-071	Frank Veterinary Laboratories.	Frank Sodium Sulfamethazine.
100-095	Wendt Laboratories, Inc.	Sulfamethazine Boluses.
100-126	Vista Laboratories, Inc.	Sulfamethazine Boluses.
100-177	Wendt Laboratories, Inc.	SM-25 Per Cent.
100-179	I. D. Russell Co. Laboratories.	Sodium Sulfamethazine 25 percent.
100-255	Pfizer, Inc.	Sodium Sulfamethazine.

B. Sulfathiazole

1. Acceptable disease claims:

Species

Cattle: For the treatment of bovine respiratory disease complex (shipping fever complex) associated with *Pasteurella* spp.; bacterial pneumonia

associated with *Pasteurella* spp.; calf diphtheria and necrotic pododermatitis (foot rot) caused by *Fusobacterium necrophorum*; acute mastitis and acute metritis caused by *Streptococcus* spp.

Swine: For the treatment of bacterial pneumonia caused by *Pasteurella* spp.; porcine colibacillosis (bacterial scours) caused by *Escherichia coli*.

Dosage

Oral—Drinking Water Solution and Soluble Powder.

Cattle and swine: 1 1/2 grain per pound body weight (equivalent to 97.2 mg per pound body weight) per day for 4 days. Do not exceed 4 days' treatment.

Cattle Boluses—Initially 1 grain per pound body weight (equivalent of 64.8 mg per pound body weight) followed by 1/2 grain per pound body weight (32.4 mg per pound body weight) every 8 hours. Do not exceed 4 days' treatment.

Cattle and swine: Mixtures (two or three) of sulfathiazole, sulfamethazine, or sulfamerazine:

Initially 1 grain per pound body weight (equivalent to 64.8 mg per pound body weight) followed by 1/2 grain per pound body weight (equivalent to 32.4 mg per pound body weight) every 12 hours. Do not exceed 4 days' treatment.

2. NADA numbers, sponsors, and products containing sulfathiazole alone or in combination with other sulfa products:

NADA No.	Sponsor	Product name
93-026	Syntex Laboratories/Diamond Laboratories.	Extra-Sul Boluses. Sulfamethazine sodium. Sulfathiazole sodium.
93-027	Syntex Laboratories/Diamond Laboratories.	Extra-Sul Solution. Sulfamethazine sodium. Sulfathiazole sodium.
93-028	Syntex Laboratories/Diamond Laboratories.	Extra-Sul Powder. Sulfamethazine sodium. Sulfathiazole sodium.
99-848	Salsburg Laboratories.	Sulfathiazole sodium sesquihydrate.
99-855	Salsburg Laboratories.	Ar-Sulfa Soluble Powder.
99-857	Salsburg Laboratories.	Sodium Sulfathiazole Soluble Powder.
99-875	Veterinary Laboratories, Inc. (formerly Vet Products Corp.).	Bi-Sulfa Boluses improved. Sulfamethazine. Sulfathiazole.
99-886	Veterinary Laboratories, Inc. (formerly Vet Products Corp.).	Triple Sulfa Solution 12%.
+99-920	Quality Plus Products.	Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Triple Sulfa.
99-927	Quality Plus Products.	Sulfamerazine sodium. Sulfathiazole sodium. Bi-Sulfa Boluses. Sulfamerazine.
99-932	Quality Plus Products.	Sulfamethazine. Sulfathiazole. Sulfathiazole Boluses.
99-941	Franklin Laboratories.	Triple Sulfa 25. Sulfamethazine sodium.

NADA No.	Sponsor	Product name
99-944	Franklin Laboratories.	Sulfathiazole sodium, Sulfamerazine sodium, Tri-Sulfa Boluses improved, Sulfamethazine, Sulfathiazole, Sulfamerazine, S.G. Seven.
99-947	International Multifoods (formerly Laboratories).	Sulfamethazine, Sulfathiazole, Sulfamerazine, TS 543.
+ 99-952	International Multifoods (formerly Laboratories).	Sulfamethazine sodium, Sulfathiazole sodium, Sulfamerazine sodium, Soolfour 12.6%
99-959	Fort Dodge Laboratories.	Sulfamethazine, Sulfathiazole, Sulfamerazine, Sulfathiazole Sodium N.F.
99-975	Quality Plus Products.	Sulfathiazole Sodium N.F.
99-985	Norden Laboratories.	Sulfatoss Parenteral, Sulfonomide Solution, Sulfamethazine, Sulfathiazole.
99-993	Phlips Roxane, Inc.	Anchor Sol-Thiazole, Sodium sulfathiazole Extra-Sul Powder.
99-996	Syntex Laboratories/ Diamond Laboratories.	Sulfamethazine sodium, Sulfathiazole sodium, Sodium Sulfathiazole.
99-999	Medico Industries, Inc.	Thi-Meth Boluses, Sulfamethazine, Sulfathiazole, Sodium Sulfathiazole N.F.
100-010	Medico Industries, Inc.	Sul-Trol-E.
100-019	International Multifoods (formerly Osborn Laboratories).	Tri-Sul 2 MT.
100-023	Rhone-Poulenc, Inc.	Sulfamethazine sodium, Sulfathiazole sodium, Sulfamerazine sodium, Tri-Sul I Boluses.
100-025	Veterinary Laboratories, Inc. (formerly Witney & Co.).	Sulfamethazine, Sulfathiazole, Sulfamerazine, Triple Sulfa Solution 24%.
100-089	Wendt Laboratories Inc.	Sulfamethazine sodium, Sulfathiazole sodium, Sulfamerazine sodium, Thiazole-Sodium, Sulfathiazole sodium, Sulfathiazole Boluses.
+ 100-091	Wendt Laboratories, Inc.	Thiazole-Sodium, Sulfathiazole sodium, Sul-Thi-Zol, Sulfathiazole sodium.
100-099	Vineyard Laboratories.	
100-101	Wendt Laboratories, Inc.	
100-117	Vista Laboratories	
100-162	MSO A G VET (Division of Merck & Co., Inc.).	

C. Sulfaquinoxaline

1. Acceptable disease claims:

Species

Sulfaquinoxaline in drinking water or as a drench for cattle and sheep and in drinking water for chickens, turkeys, and rabbits:

Cattle: For the control and treatment of coccidiosis caused by *Eimeria bovis* and *E. zurnii*.

Sheep: For the control and treatment of coccidiosis caused by *Eimeria ovinoidalis* (*Eimeria ninakohlyakimovae*).

Chickens: For the control of coccidiosis caused by *Eimeria tenella*, *E. necatrix*, *E. acervulina*, *E. maxima*, and *E. brunetti*.

Turkeys: For the control of coccidiosis caused by *Eimeria meleagritidis* and *E. adenoides*.

Chickens and turkeys: For the control of acute fowl cholera caused by *Pasteurella multocida* and fowl typhoid caused by *Salmonella gallinarum*.

Rabbits: For the control of coccidiosis caused by *Eimeria stiedae*.

Pheasants and quails: For the control of acute fowl cholera caused by *Pasteurella multocida*.

Dosage

Sulfaquinoxaline 20 percent solution and sulfaquinoxaline 25 percent soluble powder.

Coccidiosis	Control
Chickens (0.04 percent) (0.025 percent).	Give for 2 to 3 days, skip 3 days, then give for 2 more days. If bloody droppings appear, repeat treatment at this level for 2 more days.
Turkeys (0.025 percent).	Give for 2 days, skip 3 days, give for 2 days, skip 3 days, and give 2 more days. Repeat if necessary.
Acute fowl cholera in chickens, turkeys, pheasants, and quail and fowl typhoid in chickens and turkeys (0.04 percent).	Use for 2 to 3 days. Move birds to clean ground. If disease recurs, repeat treatment.

Coccidiosis	Control and treatment
Cattle and feed-lot lambs (0.015 percent).	Give for 3 to 5 days. (Equivalent to 5 mg per pound body weight.)

MEDICATED PREMIX
(Concentration in finished feed)

Coccidiosis	Control
Turkeys	0.05 percent for 3 days, follow with 3 days on regular feed and 2 more days on 0.05 percent sulfaquinoxaline feed, again follow with 3 days on regular feed and 2 more days on 0.05 percent sulfaquinoxaline feed. Continue this schedule if necessary until all signs of the outbreak have subsided.
Chickens	0.1 percent for first 48 to 72 hours, skip 3 days; 0.05 percent for 2 days, skip 3 days; 0.5 percent for 2 days. This is a 2-3-2-3-2 schedule. If bloody droppings recur, give 0.05 percent for another 2 days.
Rabbits	0.1 percent for 2 weeks.

MEDICATED PREMIX—Continued
(Concentration in finished feed)

Coccidiosis	Control
Acute fowl cholera and fowl typhoid in chickens and turkeys.	0.1 percent for 48 to 72 hours. Mortality should be brought under control. After medication, move birds to clean ground or to a clean house. If disease recurs, use 0.05 percent in feed again for 2 days.

2. NADA numbers, sponsors, and product names for sulfaquinoxaline alone or in combination with other sulfa products:

NADA No.	Sponsor	Product name
99-867	Salsbury Laboratories.	Sulfquin-40 Medicated Premix.
99-897	Veterinary Laboratories, Inc. (formerly Vet Products Corp.).	Sulquib 333.
99-928	Quality Plus Products.	Sulfaquinoxaline 3.2%.
99-071	Quality Plus Products.	Sulfaquinoxaline Boluses—16 Grams.
99-974	Quality Plus Products.	Sulfaquinoxaline 20% concentrate.
99-978	Quality Plus Products.	Triple Sulfa for Poultry.
100-017	International Multifoods (formerly Osborn Laboratories).	Sulfamerazine sodium, Sulfamethazine sodium, Sulfaquinoxaline sodium, Bovo-Cox Calf Size Boluses.
100-020	International Multifoods (formerly Osborn Laboratories).	Bovo-Cox Boluses, Sulfaquinoxaline.
100-021	International Multifoods (formerly Osborn Laboratories).	Bovo-Cox Powder, Sulfaquinoxaline.
100-022	Rhone Poulenc, Inc. (formerly Hess & Clark).	20% Sulfaquinoxaline Solution.
100-029	Vineyard Laboratories.	20% Sulfa-Pol Liquid Concentrate, Sulfamerazine, Sulfamethazine, Sulfaquinoxaline.
100-064	L. D. Russell Co.	Russel Triple Sulfa, Sulfamerazine sodium, Sulfamethazine sodium, Sulfaquinoxaline sodium.
100-129	L. D. Russell Co.	Liquid Sul-O-Nox 3.2%, Sulfaquinoxaline.
+ 100-174	L. D. Russell Co.	K-Cued Sulfa, Feed Mixture, Sulfamerazine, Sulfamethazine, Sulfathiazole, Sulfaquinoxaline.
100-175	L. D. Russell Co.	Liquid Sul-O-Nox 3.2% and 20% Sulfaquinoxaline.
100-176	L. D. Russell Co.	Liquid Sul-O-Nox 34.44%, Sulfaquinoxaline.

D. Sulfamerazine

1. Acceptable disease claims:

Species

Cattle: for the treatment of bovine respiratory disease complex (shipping fever complex) associated with *Pasteurella* spp.; bacterial pneumonia associated with *Pasteurella* spp.;

colibacillosis caused by *Escherichia coli*; necrotic pododermatitis (foot rot) and calf diphtheria caused by *Fusobacterium necrophorum*; coccidiosis caused by *Eimeria bovis* and *E. zurnii*.

Sheep: For the treatment of bacterial pneumonia associated with *Pasteurella* spp.; colibacillosis caused by *Escherichia coli*.

Swine: For the treatment of bacterial pneumonia associated with *Pasteurella* spp.; colibacillosis caused by *Escherichia coli*.

Chickens: For the control of infectious coryza caused by *Hemophilus gallinarum*; coccidiosis caused by *Eimeria tenella*, *E. necatrix*, *E. acervulina*, *E. maxima*, *E. brunetti*, acute fowl cholera caused by *Pasteurella multocida*; pullorum disease caused by *Salmonella pullorum*; fowl typhoid caused by *Salmonella gallinarum*.

Turkeys: For the control of coccidiosis caused by *Eimeria adenoides* and *E. meleagrimitis*; acute fowl cholera caused by *Pasteurella multocida*; fowl typhoid caused by *Salmonella gallinarum*.

Dosage—Orally

Cattle, sheep, and swine: Initially 1 grain per pound body weight (equivalent to 64.8 mg per pound body weight) followed by 1/2 grain per pound body weight every 12 hours. Do not exceed 4 days' treatment.

Chicken and turkeys: 0.1 to 0.2 percent concentration in soluble powder or drinking water solution. Do not exceed 4 days' treatment.

2. NADA number, sponsor, and product name:

NADA No.	Sponsor	Product name
100-008	Wendt Laboratories.	Double-M-12.5 percent Solution. Sodium sulfamethazine. Sodium sulfamethazine.

E. Sulfapyridine

1. Acceptable disease claims:

Species

Cattle: For the treatment of necrotic pododermatitis (foot rot) and calf diphtheria caused by *Fusobacterium necrophorum*; bacterial pneumonia caused by *Pasteurella* spp.

Dosage—Orally and injectable

Initially 1 grain per pound body weight (equivalent to 64.8 mg per pound body weight) followed by 1/2 grain per pound body weight (equivalent to 32.4 mg per pound body weight) every 12 hours. Do not exceed 4 days' treatment.

2. NADA numbers, sponsors, and product names for sulfapyridine alone or in combination with other sulfa products.

NADA No.	Sponsor	Product name
99-854	Phlips Roxane, Inc.	Anchor Tri-Sulfa Injectable 24%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-906	Veterinary Laboratories, Inc.	Oral Triple Sulfa Solution 26%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-906	Veterinary Laboratories, Inc.	Triple Sulfa 180 Boluses. Sulfamethazine. Sulfathiazole. Sulfapyridine.
99-908	Veterinary Laboratories, Inc.	Sulfa-Triple No. 4. Sulfamerazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-909	Veterinary Laboratories, Inc.	Sulfapyridine Solution.
99-111	Veterinary Laboratories, Inc.	Triple Sulfa Boluses-90. Sulfamethazine. Sulfathiazole. Sulfapyridine.
99-912	Veterinary Laboratories, Inc.	Tri-Sulfa Solution No. 8. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
+99-913	Veterinary Laboratories, Inc.	Oral Tri-Sulfa Solution 13%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-914	Veterinary Laboratories, Inc.	Sulfapyridine-480.
99-915	Veterinary Laboratories, Inc.	Sulfapyridine Boluses.
99-921	Quality Plus Product Corp.	Triple Sulfa-80. Sulfamethazine. Sulfathiazole. Sulfapyridine.
99-935	Quality Plus Products Corp.	Sulfapyridine Boluses.
99-976	Quality Plus Products Corp.	Sulfapyridine Solution 12%.
99-979	Quality Plus Products Corp.	Triple Sulfa 4 Injectable. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
+99-990	Quality Plus Products Corp.	Triple Sulfa Solution-8 Oral. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-992	Quality Plus Products Corp.	Oral Triple Sulfa Solution 12%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
99-996	Norden Laboratories, Inc.	Tri-Sulfa G. Sulfamethazine. Sulfathiazole. Sulfapyridine.
+99-991	Phlips Roxane, Inc.	Anchor Triple Sulfa Solution 12.2%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
100-002	Wendt Laboratories, Inc.	Neutral Sulfa-7. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
100-004	Medico Industries, Inc.	Triple Sulfa Injectable 12%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.

NADA No.	Sponsor	Product name
100-007	Medico Industries, Inc.	Triple Sulfa Injectable 24%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
100-013	Medico Industries, Inc.	Sulfapyridine Boluses.
100-070	Frank Veterinary Laboratories.	Frank Triple Sulfa Solution (INJ). Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
100-072	Frank Veterinary Laboratories.	Frank Triple Sulfa Solution Oral 12%. Sulfamethazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.
+100-092	Wendt Laboratories, Inc.	Oral Triple Sulfa Solution 12%. Sulfamethazine. Sulfathiazole. Sulfapyridine.
100-096	Wendt Laboratories, Inc.	Neutral Sulfa-50 Solution. Sulfamethazine. Sulfathiazole. Sulfapyridine.
100-100	Wendt Laboratories, Inc.	Triul II Boluses. Sulfamethazine. Sulfathiazole. Sulfapyridine.
100-102	Wendt Laboratories, Inc.	Sulfapyridine Boluses.
100-178	Wendt Laboratories, Inc.	Sulfa-Plex Triple Sulfa Solution Oral 12.5%. Sulfamerazine sodium. Sulfathiazole sodium. Sulfapyridine sodium.

F. Sulfanilamide

1. Acceptable disease claims:

Species

Cattle: For the treatment of bovine respiratory disease complex (shipping fever complex) associated with *Pasteurella* spp.; bacterial pneumonia associated with *Pasteurella* spp.; acute metritis caused by *Streptococcus* spp.; acute mastitis caused by *Streptococcus* spp.

Dosage—Orally

Cattle: Initially 1 grain per pound body weight (equivalent to 64.8 mg per pound body weight) followed by 1/2 grain per pound body weight (equivalent to 32.4 mg per pound body weight) every 12 hours. Do not exceed 4 days' treatment.

2. NADA numbers, sponsors, and products names for sulfanilamide alone or in combination with other sulfa products.

NADA No.	Sponsor	Product name
99-851	Salsbury Laboratories.	Sulfanilamide.
99-861	Salsbury Laboratories.	Sulfanilamide Boluses.
99-870	Veterinary Laboratories, Inc. (formerly Vet Products Corp.)	Tri-Mera Bolus. Sulfanilamide. Sulfathiazole. Sulfamerazine.

NADA No.	Sponsor	Product name
99-880	Veterinary Laboratories, Inc. (formerly Vet Products Corp.)	Tri-Metha-Bolus. Sulfanilamide. Sulfathiazole. Sulfamethazine.
99-931	Quality Plus Products Corp.	Sulfanilamide.
99-934	Quality Plus Products Corp.	Triple Sulfas Boluses. Sulfanilamide. Sulfathiazole. Sulfamethazine.
99-972	Quality Plus Products Corp.	Sulfanilamide Boluses.
99-990	Phlips Roxane, Inc.	Triple Sulfas Bolus. Sulfanilamide. Sulfathiazole. Sulfamethazine.
100-123	Vista Laboratories, Inc.	Triple Sulfas Bolus. Sulfanilamide. Sulfathiazole. Sulfamethazine.

VIII. Combination Drug Products Containing Sulfonamides and Other Ingredients

A. Additional Data Requirements

In addition to the data requirements stated above, sponsors of NADA's for sulfonamides combined with nonsulfonamide drugs, antibiotics, nutrients, or urea must submit complete human food and animal safety and effectiveness data that meet current standards, as required by § 514.1. The product must meet the combination drug policy set forth in § 514.1(b)(8)(v), except that if the product contains more than one sulfonamide, the mixture of sulfonamide may be considered as one drug for purpose of applying the combination policy. In the alternative, sponsors may request a hearing on denial of approval.

The only exception to the data requirements stated in the immediately preceding paragraph is for products intended for use in drinking water and containing only sulfonamides combined with nutrient components. These products are indicated with an asterisk (*). Sponsors need not comply with the combination drug policy or current human food safety requirements if they comply with the following limitations: Sponsors must demonstrate lack of interference between the nutrients and the drug ingredients. No direct or implied claims for nutrients will be permitted and the trade name of the product may not include the name of such nutrients. Products must bear the following statement on the label: "The nutrients in this product serve a limited nutritional function only; they have not been shown to have and are not intended to impart any direct therapeutic benefit". Disease claims for these products must be limited to the acceptable claims listed in section VII above under the particular sulfonamide product, or in the case of products

containing two or more sulfonamides, to those acceptable claims that are common to the individual sulfonamides in the mixture.

FDA has reviewed available data concerning the use of sulfonamide drugs in combination with urea and acriflavine for intrauterine administration in cattle, sheep, and swine and has concluded that available data do not support any claims for use in such products. There are no approved NADA's for these products. About 10 NADA's for these products were filed under the provisions of § 510.450. In lieu of attempting to substantiate the safe and effective use of these products, sponsors may elect to request a hearing on the denial of approval or may withdraw their applications.

B. New Animal Drugs Containing Sulfonamides in Combination With Nutrients or Other Drugs

The following new animal drugs containing sulfonamides in combination with nutrients or other drugs are now being marketed under § 510.450:

NADA No.	Sponsor	Product name
*99-790	Phlips Roxane, Inc.	Anchor Isotite Drinking Water Medication. Sulfathiazole sodium. Vitamin A. Vitamin D ₃ . Ethylenediamine dihydrochloride. Potassium chloride. Calcium gluconate. Sodium bicarbonate. Ferrous sulfate. Zinc sulfate. Cobalt sulfate monohydrate. Manganese sulfate monohydrate. Copper sulfate pentahydrate. Calcium hypophosphite. Magnesium sulfate. Sodium chloride. Sulfas-Lites Medicated. Sulfathiazole sodium. Calcium chloride. Magnesium sulfate. Potassium chloride. Sodium chloride.
*99-842	Cadco, Inc.	Sulfathiazole sodium. Calcium chloride. Magnesium sulfate. Potassium chloride. Sodium chloride.
*99-843	Salsbury Laboratories.	Hog & Cattle Sulfas with Vitamins, Electrolytes, and EDDI. Sulfathiazole sodium sesquihydrate. Ethylenediamine dihydrochloride. Potassium chloride. Sodium chloride. Sodium carbonate. Vitamin A. Vitamin D ₃ .
*99-844	Salsbury Laboratories.	Hog & Cattle Sulfas. Sulfathiazole sodium sesquihydrate. Ethylenediamine dihydrochloride. Potassium chloride. Sodium chloride. Sodium carbonate monohydrate.

NADA No.	Sponsor	Product name
+*99-845	Salsbury Laboratories.	Triple-Sulfas Solution with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Potassium hydroxide. Sodium hydroxide. Potassium chloride. Sodium chloride. Calcium gluconate.
*99-848	M & M Livestock Products Co.	Sulfaton Premix. Sulfanilamide. Sulfathiazole. Sulfamerazine. Sulfaquinoxaline. Vitamin A palmitate. D-activated animal steroid (source of Vitamin D ₃). Riboflavin. D-Calcium pantothenate. Niacin. Choline chloride. Vitamin B ₁₂ . Copper oxide. Iron oxide. Manganese oxide. Zinc oxide.
*99-850	M & M Livestock Products Co.	Sodium bicarbonate, cobalt carbonate, and potassium iodide. M & M V 175. Sulfathiazole sodium. Vitamin A (palmitate). Vitamin D ₃ . Riboflavin. Niacin. Pantothenic acid. Vitamin B ₁₂ .
+*99-853	Salsbury Laboratories.	Triple Sulfas Soluble Powder. Sulfamethazine sodium. Sulfamerazine sodium. Sulfathiazole sodium. Vitamin A. Vitamin D ₃ . Calcium lactate. Magnesium sulfate. Potassium chloride. Sodium chloride.
*99-856	Salsbury Laboratories.	Hog and Cattle Sulfas with Vitamins and Electrolytes. Sulfathiazole sodium sesquihydrate. Potassium chloride. Sodium carbonate. Vitamin A. Vitamin D ₃ .
*99-859	Vet-A-Mix	Sulfetro-Sol-One. Sulfathiazole sodium. Potassium. Sodium present as carbonate, chlorides, citrate, and bicarbonate.
99-862	Salsbury Laboratories.	SM-15 Sulfas Boluses with Electrolytes. Sulfamethazine. Sodium. Potassium. Calcium. Magnesium. Chloride.
99-863	Salsbury Laboratories.	90-90-60 Sulfas Boluses with Electrolytes. Sulfathiazole. Sulfanilamide. Sulfamethazine. Calcium. Chloride. Magnesium. Potassium.
99-864	Salsbury Laboratories.	+ Sodium T-M-P-60 Boluses with Electrolytes. Sulfathiazole. Sulfamethazine. Sulfapyridine. Calcium. Chloride. Magnesium.

NADA No.	Sponsor	Product name	NADA No.	Sponsor	Product name	NADA No.	Sponsor	Product name
99-865	Salsbury Laboratories.	Potassium. Sodium. Triple Sulfate Boluses with Electrolytes. Sulfathiazole. Sulfamethazine. Sulfanilamide. Calcium Chloride. Magnesium. Potassium. Sodium.	99-943	Franklin Laboratories.	Calcium. Magnesium. Potassium. Trace minerals of iron, cobalt, copper, magnesium, and zinc. Bacterial Scour Boluses.	99-964	Mast-Kure Products Co., Inc.	Homatropine methyrbromide. Kaolin and psyllium. MKP Masti-Kure Inertory Formula 206 A. Nitrofurazone. Sulfathiazole. Sulfamethazine. Urea.
99-868	Veterinary Laboratories, Inc. (formerly Vet. Product Corp.)	Sulfathiazole sodium. Sulfamethazine sodium. Sodium, potassium, magnesium, calcium, chlorides, sulfates, and trace elements, iron, cobalt, zinc, copper, and manganese. Vitamin A palmitate. Vitamin D. Riboflavin. Nicotinamide. Vitamin B. Ethylenediamine dihydrochloride.	99-945	Franklin Laboratories.	Sulfamethazine. Neomycin. Homatropine methyrbromide. Atropine sulfate. Foul Rot Boluses. Sulfapyridine. Ethylenediamine dihydrochloride. Calf Bacterial Scour Treatment Solution. Cattle Scour Treatment Solution. Sulfamethazine. Neomycin. Kaolin. Pectin. Bismuth subcarbonate. Homatropine methyrbromide. Hubbard Triple Sulfate Solution. Sulfathiazole sodium. Sulfamethazine sodium. Sulfamerazine sodium. Potassium. Sodium. Magnesium. Calcium and chloride. Triple Sulfate-868 Boluses. Sulfamethazine. Sulfathiazole. Sulfamerazine. Electrolytes.	99-965	Mast-Kure Products Co., Inc.	Triple Sulfate Bolus with Electrolytes Formula 127. Sulfanilamide. Sulfathiazole. Sulfamethazine. Sodium. Potassium. Chloride. Calcium.
99-872	Veterinary Laboratories, Inc. (formerly Vet. Product Corp.)	Uterine Boluses with Acriflavine. Urea. Sulfanilamide. Sulfathiazole. Acriflavine. Sulfathiazole Uterine Bolus. Sulfathiazole. Urea.	99-946	Franklin Laboratories.	Hubbard Triple Sulfate Solution. Sulfathiazole sodium. Sulfamethazine sodium. Sulfamerazine sodium. Potassium. Sodium. Magnesium. Calcium and chloride. Triple Sulfate-868 Boluses. Sulfamethazine. Sulfathiazole. Sulfamerazine. Electrolytes.	99-966	Mast-Kure Products Co., Inc.	Kendall Calf Scour Tablets Formula 115. Neomycin base. Sulfamethazine. Kaolin. Nicotinamide. Vitamin A. Vitamin D. MKP Giant Liquid-100 Formula 260. Neomycin sulfate. Sulfamethazine. Atropine. Pectin.
99-907	Veterinary Laboratories, Inc.	Uterine Boluses with Acriflavine. Urea. Sulfathiazole. Sulfanilamide. Sulfathiazole. Urea.	+*99-948	International Multifoods Corp. (formerly Osborn Laboratories).	Metzol Boluses. Sulfamethazine. Electrolytes.	99-967	Mast-Kure Products Co., Inc.	Mast-Kure Kalf-Caps Formula 148. Neomycin sulfate. Sulfamethazine. Kaolin. Pectin.
+*99-917	Quality Plus Products Corp.	Vi-Sul-Lyte. Sulfathiazole sodium. Sulfamethazine sodium. Sodium, potassium, magnesium, calcium, chlorides, sulfates, and trace elements, iron, cobalt, zinc, copper, and manganese. Vitamin A palmitate. Vitamin D. Riboflavin. Nicotinamide. Vitamin B. Ethylenediamine dihydrochloride.	99-950	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	99-968	Mast-Kure Products Co., Inc.	Mast-Kure Kalf-Caps Formula 148. Neomycin sulfate. Sulfamethazine. Kaolin. Pectin.
99-918	Quality Plus Products Corp.	Uterine Boluses. Urea. Sulfanilamide. Sulfathiazole.	99-951	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	+*99-970	Quality Plus Products Corp.	Sulyle Powder. Sodium sulfathiazole. Sodium. Potassium. Calcium. Magnesium. Chloride. Ethylenediamine dihydrochloride.
99-919	Quality Plus Products Corp.	Sulfapyridine-iodine Boluses. Sulfapyridine. Ethylenediamine dihydrochloride.	+*99-954	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	+*99-981	Quality Plus Products Corp.	Triple Sulfate with Electrolytes. Sulfathiazole sodium. Sulfamerazine sodium. Sulfamethazine sodium. Potassium. Calcium. Magnesium. Sodium. Chloride. Gluconate. Bicarbonate.
99-924	Quality Plus Products Corp.	Uterine Boluses with Acriflavine. Urea. Sulfathiazole. Sulfanilamide.	99-955	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	*99-983	Vineland Laboratories.	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium. Potassium. Calcium. Magnesium as chloride, carbonate, sulfate, and lactate, plus trace amount of cobalt, zinc, copper, manganese, and iron.
99-929	Quality Plus Products Corp.	Triple Sulfate 80 with Electrolytes. Sulfamerazine. Sulfathiazole. Sulfamethazine. Calcium chloride. Sodium chloride. Potassium chloride. Magnesium chloride.	99-957	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	99-984	Norden Laboratories, Inc.	Sulfathiazole sodium. Sulfamerazine sodium. Sulfamethazine sodium. Sodium. Potassium. Calcium. Magnesium as chloride, carbonate, sulfate, and lactate, plus trace amount of cobalt, zinc, copper, manganese, and iron.
*99-933	Quality Plus Products Corp.	Sodium Sulfamethazine 12.5%. Sodium sulfamethazine. Sodium hydroxide. Sodium chloride. Sodium bicarbonate. Potassium chloride. Calcium gluconate and magnesium chloride.	99-958	International Multifoods Corp. (formerly Osborn Laboratories).	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	99-987	Norden Laboratories, Inc.	Sulfathiazole sodium. Sulfamerazine sodium. Sulfamethazine sodium. Sodium. Potassium. Calcium. Magnesium as chloride, carbonate, sulfate, and lactate, plus trace amount of cobalt, zinc, copper, manganese, and iron.
99-939	Franklin Laboratories.	Cattle Scour Boluses. Neomycin sulfate. Sulfamethazine. Pectin. Vitamin A. Vitamin D. Atropine.	99-960	Mast-Kure Products Co., Inc.	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	99-988	Norden Laboratories, Inc.	Sulfathiazole sodium. Sulfamerazine sodium. Sulfamethazine sodium. Sodium. Potassium. Calcium. Magnesium as chloride, carbonate, sulfate, and lactate, plus trace amount of cobalt, zinc, copper, manganese, and iron.
*99-940	Reiston Purina Co.	Purina Electro-zole. Sulfathiazole sodium. Sodium chloride. Sodium iodide. Potassium chloride. Bacterial Pneumonia Bolus. Sulfamethazine. Ethylenediamine dihydrochloride. Chloride salts of sodium.	99-961	Mast-Kure Products Co., Inc.	Triple Sulfate with Electrolytes. Sulfamethazine sodium. Sulfathiazole sodium. Sulfamerazine sodium. Sodium, potassium, magnesium, calcium, and chloride. Methapyrin-Stress Formula. Sulfamethazine. Neomycin. Pyriminyl maleate. Methyloproprate nitrate. Vitamin A palmitate. Sodium acetate. Potassium acetate. Potassium chloride. Metzol Calf Size Boluses.	99-989	Phelps Roxane, Inc.	Anchor Sulfate Urea Boluses. Urea. Sulfanilamide. Sulfathiazole. Sulfamerazine. Urea.
99-942	Franklin Laboratories.	Bacterial Pneumonia Bolus. Sulfamethazine. Ethylenediamine dihydrochloride. Chloride salts of sodium.	99-963	Mast-Kure Products Co., Inc.	Scour-Out for Baby Pigs. Neomycin sulfate. Sulfamethazine.	99-992	Phelps Roxane, Inc.	Anchor Uterine-Care Boluses. Sulfanilamide. Urea.

Chairman, on behalf of the Commission, certifies that this rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

The Commission has submitted pertinent portions of this rule to the Office of Management and Budget in accordance with the Paperwork Reduction Act of 1980 (44 U.S.C. Chapter 35).

List of Subjects in 17 CFR Part 1

Commodity futures, Floor brokers, Registration.

In consideration of the foregoing and based upon the authority contained in the Commodity Exchange Act and, in particular, sections 4c, 4e, 4f, 5, 5a and 8a thereof, 7 U.S.C. 6c, 6e, 6f, 7, 7a, 12a (1982), the Commission hereby proposes to amend Chapter I of Title 17 of the Code of Federal Regulations by adopting new §1.62 as follows:

PART 1—GENERAL REGULATIONS UNDER THE COMMODITY EXCHANGE ACT

1. Section 1.62 is proposed to be added and, as added, would read as follows:

§ 1.62 Contract market requirement for floor broker registration.

Each contract market shall adopt, maintain in effect, and enforce rules which have become effective pursuant to section 5a(12) of the Act and § 1.41 of this chapter and which provide that no person in or surrounding any pit, ring, post, or other place provided by such contract market for the meeting of persons similarly engaged, shall purchase or sell for any other person any commodity for future delivery, or any commodity option, on or subject to the rules of that contract market, unless such person is registered with the Commission as a floor broker in accordance with section 4f of the Act and § 3.11 of this chapter, and such registration has not expired nor been suspended (and the period of such suspension shall not have expired) nor revoked.

Issued in Washington, D.C. on August 1, 1984, by the Commission.

Jane K. Stuckey,

Secretary of the Commission.

[FR Doc. 84-20734 Filed 8-6-84; 8:45 am]

BILLING CODE 6351-01-M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 510

[Docket No. 84N-0036]

Notice to Sponsors of Drugs Containing Sulfamethazine, Sulfamethoxazole, Sulfamerazine, Sulfathiazole, Sulfapyridine, or Sulfanilamide for Oral, Injectable, Intramammary, or Intrauterine Use in Food-Producing Animals; Termination of Interim Marketing; Data Submission Requirements

Correction

In FR Doc. 84-17707, beginning on page 27543, in the issue of Thursday, July 5, 1984, make the following corrections:

1. On page 27548, in the third column, in the table, in the entries for NADA Nos. 99-848, 99-855 and 99-857, "Salsburg" should read "Salsbury"; in the same table, in entry +99-920, in the Product name column, "Sulfamerazine" should read "Sulfamethazine" the first time it appears.

In entry 99-927, in the product name column, "Sulfamerazine" should read "Sulfamethazine".

2. On page 27549, in the first column, in the table, in entries 99-947 and +99-952, in the Sponsor column, "(formerly Laboratories)" should read "(formerly Osborn Laboratories)"; in entry 99-985, in the Product name column, "Sulfonamide" should read "Sulfonamide".

3. On page 27549, in the third column, in the NADA No. column, "99-071" should read "99-871".

4. On page 27550, in the second column, in the table, in entry 99-854, in the Product name column, "Sulfamathiazole" should read "Sulfathiazole"; entry "99-111" should read "99-911"; in entry 99-912, in the Product name column, "Sulfathiazole" should read "Sulfathiazole"; and in entry +99-980, in the Sponsor column, "Ius" should read "Plus".

5. Also on page 27550, in the third column, in entry 100-007, in the Product name column, "Sulfathizole" should read "Sulfathiazole"; in the same entry, the second listing of "Sulfapyridine sodium" should be removed.

6. On page 27551, in the third column, in entry "99-849, in the Product name column, "D-Calcium pathothenate" should read "D-calcium pantothenate".

7. On page 27552, in the first column, in entry 99-819, in the Product name

column, "Ethylendiamin" should read "Ethylenediamine".

BILLING CODE 1505-01-M

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Office of the Assistant Secretary for Housing—Federal Housing Commissioner

24 CFR Part 203

[Docket No. R-84-1175; FR-1501]

Mutual Mortgage Insurance and Insured Home Improvement Loans; Issue Date of Debentures

AGENCY: Office of the Assistant Secretary for Housing—Federal Housing Commissioner, HUD.

ACTION: Proposed rule.

SUMMARY: This proposed rule would change the method by which debenture interest is computed when a one-to four-family property is conveyed to the Secretary in exchange for insurance benefits. Currently, debentures on all reimbursable expenses are dated as of the date of default under the mortgage. Consequently, debenture interest may accumulate on reimbursable items before an actual expenditure of funds is made for these items by a mortgagee. This proposed rule would amend the procedure to provide that, with respect to debentures issued for reimbursable expenditures made by a mortgagee, these debentures would be dated as of the actual date the expenditure is incurred by a mortgagee. The effect of this amendment would be to eliminate the overpayment of debenture interest because the Department would no longer be paying debenture interest on a reimbursable expense for a period before the expenditure is actually incurred.

DATE: Comments must be received by October 9, 1984.

ADDRESS: Interested persons are invited to submit written comments regarding this rule on or before the due date to the Rules Docket Clerk, Office of General Counsel, Department of Housing and Urban Development, Room 10276, 451 Seventh Street, SW., Washington, D.C. 20410. Communications should refer to the above docket number and title. A copy of each communication submitted will be available for public inspection and copying during regular business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Richard B. Buchheit, Director, Single