

Shaughnessy No.: 060101

Date Out of EFGWB: DEC 15 1988

To: G. Werdig/R. Whitters
Product Manager # 50
Registration Division (TS-767)

From: Paul Mastradone, Ph.D., Acting Chief *PM*
Environmental Chemistry Review Section 1
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (TS-769-C)

THRU: Henry Jacoby, Acting Chief *Henry Jacoby*
Environmental Fate and Ground Water Branch/EFED (TS-769C)

Attached, please find the EAB review of...

Reg./File # : 233-713

Chemical Name: Thiabendazole

Type Product : Fungicide

Product Name : MERTECT Fungicide products

Company Name : MERCK & Co.

Purpose : Review 135-day response to the Comprehensive Data Call-In

Notice.

Date Received: 10/24/88

Action Code: 400

Date Completed: _____

EFGWB#(s): 90080

Total Reviewing Time (decimal days): 2.0 days

Deferrals to: _____ Ecological Effects Branch, EFED

_____ Science Integration & Policy Staff, EFED

_____ Non-Dietary Exposure Branch, HED

_____ Dietary Exposure Branch, HED

_____ Toxicology Branch, HED

OFFICE OF PESTICIDE PROGRAMS DATA REVIEW RECORD

ATTACHMENT 1

Confidential Business Information-Does Not Contain National Security Information(E.O. 12065)
This form is to be used for individual studies and for submission of pesticide applications

1. PRODUCT NAME		CHEMICAL NAME Thiabendazole	
2. IDENTIFYING NUMBER 060101	3. RECORD NUMBER 233773	4. ACTION CODE 400	5. MRID/ACCESSION NUMBER
		6. STUDY GUIDELINE OR NARRATIVE 161-4, 163-2 163-3 164-4 165-2, 165-4	
7. REFERENCE NUMBER 57	8. DATE RECEIVED (EPA) 8-17-88	9. PRODUCT/REVIEW MANAGER/DCI G.Werdig/R.Writers	10. PM/RM TEAM NUMBER 50
12. PROJECTED RETURN DATE 12/24/88	13. DATE RETURNED TO (RD/SRRD)	11. DATE SENT TO (HED/EFED/RD/BEAD) 10/24/88	
INSTRUCTIONS: Merck & Company claims that the following data requirements (161-4, 163-2, 163-3, 164-4, 165-2 and 165-4) do not apply to their Thiabendazole products.			

(THIS SECTION APPLIES TO REVIEW OF STUDIES ONLY)

14. CHECK APPLICABLE BOX:

15. NUMBER OF INDIVIDUAL STUDIES SUBMITTED

- ☐ ADVERSE 6(a)(2) DATA (405) ☐ SPECIAL REVIEW DATA (870) ☐ GENERIC DATA (REREGISTRATION) (660) ☐ PRODUCT SPECIFIC DATA (655) (REREGISTRATION)

16. HAVE ANY OF THE ABOVE STUDIES (in whole or in part) BEEN PREVIOUSLY SUBMITTED FOR REVIEW? (circle: yes or no) IF YES, PLEASE IDENTIFY THE STUDY(IES):

17. RELATED ACTIONS:

18. TO	TYPE OF REVIEW	19. REVIEWS ALSO SENT TO	20. DATA REVIEW CRITERIA
HED	SCIENCE ANALYSIS & COORD.	SAC	A. Policy Note #31 ☐ 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria ☐ 2 = data of particular concern from registration standard ☐ 3 = data necessary to determine tiered testing requirements
	TOXICOLOGY/HFA	TOX/HFA	
	TOXICOLOGY/IR	TOX/IR	
EF	DIETARY EXPOSURE	DEB	B. Section 18 ☐ 1 = data in support of section 3 in lieu of section 18 C. Inert Ingredients ☐ 1 = data in support of continued use of List 1 inert
	NON-DIETARY EXPOSURE	NDE	
	ECOLOGICAL EFFECTS	EEB	
SRRD	ENVIRONMENTAL FATE & GROUND H2O	EFGWB	
	SPECIAL REVIEW	SR	
	REREGISTRATION	RER	
RD	GENERIC CHEMICAL SUPPORT	GSC	
	INSECTICIDE-RODENTICIDE	IR	
	FUNGICIDE-HERBICIDE	FH	
BEAD	ANTIMICROBIAL	AM	
	PRODUCT CHEMISTRY		
	PRECAUTIONARY LABELING		
	ECONOMIC ANALYSIS		
	ANALYTICAL CHEMISTRY		
	BIOLOGICAL ANALYSIS		

☐ CONFIDENTIAL STATEMENT OF FORMULA (TRADE SECRETS) ☐ LABEL ATTACHED

White - Data Coordinator

Yellow - Data Review Section

Green - Return with completed review

Pink - PM/RM/DCI

Include original + two (2) copies with each submission

1.

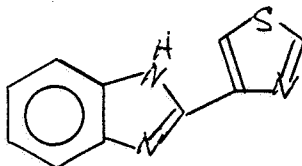
1. CHEMICAL:

Common Name- thiabendazole

Chemical Name- 2-(4-thiazolyl)benzimidazole

Trade Name- MERTECT products

Chemical Structure-



2. TEST MATERIAL: Not applicable.

3. STUDY/ACTION TYPE: Merck & Co. is responding to a 135-day Comprehensive Data Call-In Notice. They have provided rationales to support waivers from several studies: 1) Photodegradation in Air, 2) Laboratory Volatility, 3) Field Volatility, 4) Field Dissipation (combination and tank mixes), 5) Field Rotational Crop, and 6) Fish Accumulation.

4. STUDY IDENTIFICATION: Not applicable.

5. REVIEWED BY:

Herbert L. Manning, Ph.D.
Microbiologist
EFGWB/EFED

Signature: *Herbert L. Manning*
Date: DEC 15 1988

6. APPROVED BY:

Paul J. Mastradone, Ph.D.
Acting Chief, Section 1, EFGWB/EFED

Signature: *Paul J. Mastradone*
Date: DEC 15 1988

7. CONCLUSION:

EFGWB (Environmental Fate and Ground Water Branch) reviewed the rationales presented to support waivers for certain environmental fate studies, and have concluded the following:

- Photodegradation in Air
- Lab Volatility
- Field Volatility
- Field Dissipation (tank mixes)

These four studies are not required for products containing thiabendazole as the active ingredient.

- Field Rotational Crop

The requirement for this study is reserved, pending the results of the confined rotational crop study.

- Fish Accumulation

This study is required for a product with a food crop use.

8. RECOMMENDATION:

EFGWB recommends that a flow-through, fish accumulation study (using bluegill sunfish) be done using the active ingredient thiabendazole. EFGWB can concur with the waivers of the photodegradation in air (§ 161-4), the laboratory and field volatility (§ 163-2,3), and the tank mixes (§ 164-4) requirements. EFGWB can also concur with reserving the field accumulation in rotational pending the results of the confined study.

9. BACKGROUND:

A. Introduction- See the attached letter of 8/15/88 and Section 3 of this review.

B. Directions for Use- The labels for the thiabendazole uses are attached.

10. DISCUSSION OF RESPONSES TO DATA CALL-IN:

A. Thiabendazole labels- The labels of the formulated, registered products that contain thiabendazole as the active ingredient are show below:

- MERTECT 40 Water Dispersible Antimycotic- Used to retard or control mold growth in reconstituted tobacco leaf.
- MERTECT Fungicide- For use in the manufacture of fungicidal formulations.
- MERTECT 340-F Fungicide- For use on wheat, potato, pome fruit, rice, soybeans, sugar beets, and sweet potato.
- MERTECT LSP Fungicide- Used for a wheat seed treatment.
- MERTECT DF Fungicide- A water dispersible granular product.

B. Merck & Co. Responses to Data Requirements-

1. Photodegradation in Air- Merck claims the study is not required because it is conditionally required for products intended for orchard or field crops where there may be significant worker exposure. Fifteen years of commercial experience do not indicate significant worker exposure.

2. Laboratory Volatility- Merck claims the study is not required because
1) the vapor pressure of thiabendazole is very low (4×10^{-9} mm Hg at 25 C), 2) the acute inhalation toxicity is in Toxicity

Category III, and 3) 15 years of commercial experience do not indicate significant worker inhalation exposure.

3. Field Volatility- Merck cited the reasons given above for lab volatility.
4. Field Dissipation (tank mixes)- The study does not apply to thia-bendazole since it is not used with other pesticides.
5. Field Rotational Crops- Merck states that the need for the study will be determined when the confined study is done. They claim that these data are not required because significant amount of thia-bendazole/degradates are not likely to occur in aquatic environments/organisms.
6. Fish Accumulation- The exact same statement was used as for #5 above (Field Rotational Crops).

C. Reviewer Comment- EFGWB agrees that the photodegradation in air and the lab volatility studies are not required for the food crop uses, since the vapor pressure is very low (4×10^{-9} mm Hg at 25 C) and the acute inhalation toxicity is in category III. The field volatility would also not be required.

We agree that, because thiabendazole is not used with other pesticides, the field dissipation (tank mixes) study is not required.

For item #5, we agree that a field rotational crop study is only be required if a confined study warrants it. It appears that part of their statement (a reference to the unlikely presence of thiabendazole in aquatic environments/organisms) was only meant for item #6 (fish accumulation) and was mistakenly placed here.

In item #6 (fish accumulation), the exact statement was given that was used to address item #5 (field rotational crops). However, we do not agree that "...these data are not applicable as significant concentrations of the active ingredient and/or its principle degradation products are NOT likely to occur in aquatic environments or organisms." Significant concentrations may occur (through runoff or spray drift); thus, a fish accumulation study is required for a food crop use.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

There is no CBI in this review.

MERCK SHARP & DOHME RESEARCH LABORATORIES

DIVISION OF MERCK & CO., INC.

HILLSBOROUGH ROAD, THREE BRIDGES, NEW JERSEY 08887

SAMUEL F. RICKARD, Ph.D.
ASSOCIATE DIRECTOR, REGULATORY AFFAIRS
AGRICULTURAL RESEARCH & DEVELOPMENT

(201) 369-3031

DC 1 3/24/88

August 15, 1988

Ms. Geraldine W. Werdig, Chief
Data Call In Program
Registration Division (TS-767C)
Office of Pesticide Programs
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Ms. Werdig:

Thiabendazole: 135-Day Response to the Comprehensive
Data Call In Notice

The accompanying documents are being submitted in triplicate by Merck & Co., Inc. as its 135-day response to the comprehensive data call in notice for thiabendazole.

Options 1, 2, and 7 are indicated on Attachment F of the data call in notice as our responses to the data requirements. This book contains the administrative documents required in our response and includes the completed Attachment F Tabulation and Summary Sheets, Attachment G Cover Sheets for Option 1 (copies) and Option 2 responses, statements of rationale supporting our selection of Option 7 responses, and labels and Confidential Statements of Formula for those thiabendazole products for which Merck is defending the registrations (EPA Reg. Nos. 618-58; -67; -75; -84; and -92).

Data for Option 1 responses are being submitted as Document Nos. 1-19 according to PR-Notice 86-5. The transmittal document is attached, and a copy is also included in Section II of the administrative book. A copy of this book is being sent to the EPA Office of Compliance Monitoring (EN-342) as instructed in the data call in notice.

It should be noted that the TGAI (Technical Grade Active Ingredient) and the MP (Manufacturing Use Product) are synonymous for thiabendazole.

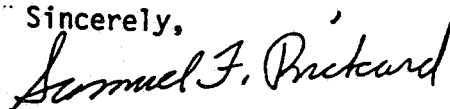
Ms. G. Werdig

-2-

August 15, 1988

Please direct all communications to Merck regarding this data call in for thiabendazole to my attention at the letterhead address and telephone number.

Sincerely,

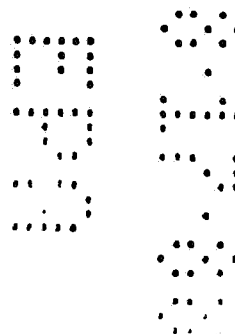


Samuel F. Rickard

:cg

Attachments

cc: EPA Office of Compliance Monitoring (EN-340):
Administrative book only



THIABENDAZOLE

158.130: ENVIRONMENTAL FATE

161-4: PHOTODEGRADATION
AIR

RATIONALE FOR SELECTING OPTION 7

Merck & Co. Inc., claim these requirements are not applicable for thiabendazole products. The guidelines indicate these data are conditionally required to support the registration of end use products intended for orchard or field vegetable crop uses that involve potentially significant exposure to workers. We do not believe that thiabendazole uses result in significant worker exposure which is based on 15 years of commercial usage and experience

Product labels and statement of confidential formulas are attached.

THIABENDAZOLE

158.103: ENVIRONMENTAL FATE

**163-2: MOBILITY STUDIES
VOLATIBILITY (LAB)**

RATIONALE FOR SELECTING OPTION 7

Merck & Co. Inc., claim these conditional requirements are not applicable for thiabendazole products. The vapor pressure of thiabendazole is virtually nil (4×10^{-9} mm Hg at 25°C). Also, the acute inhalation toxicity allows thiabendazole to be in toxicity Category III. Finally, the uses do not result in significant inhalation exposure to workers as based on over 15 years of commercial usage and experience.

Product labels and statement of confidential formulas are attached.

THIABENDAZOLE

158.130: ENVIRONMENTAL FATE

163-3: MOBILITY STUDIES
VOLATILITY (FIELD)

RATIONALE FOR SELECTING OPTION 7

Merck & Co. Inc., claim these conditional requirements are not applicable for thiabendazole products. The vapor pressure of thiabendazole is virtually nil (4×10^{-9} mm Hg at 25°C). Also, the acute inhalation toxicity allows thiabendazole to be in toxicity Category III. Finally, the uses do not result in significant inhalation exposure to workers as based on over 15 years of commercial usage and experience.

Product labels and statement of confidential formulas are attached.

THIABENDAZOLE

158.130 ENVIRONMENTAL FATE

**DISSIPATION STUDIES - FIELD
164-4: COMBINATION AND TANK MIXES**

RATIONALE FOR SELECTING OPTION 7

Merck & Co. Inc., claim this data requirement is not applicable for thiabendazole products. Thiabendazole products are not meant to be or registered to be applied in combination with other pesticide products.

Product labels and statement of confidential formulas are attached.

THIABENDAZOLE

158.130: ENVIRONMENTAL FATE

ACCUMULATION STUDIES

165-2: ROTATIONAL CROPS (FIELD)

RATIONALE FOR SELECTING OPTION 7

Determination for the need for this data will be made after the confined (165-1) rotational crops studies are completed. Merck and Co., Inc. claim that these data are not applicable as significant concentrations of the active ingredient and/or its principle degradation products are NOT likely to occur in aquatic environments or organism. Further determination can be made after the confined (165-1) rotational crop studies are completed.

Product labels and statement of confidential formulas are attached..

THIABENDAZOLE

158.130: ENVIRONMENTAL FATE

ACCUMULATION STUDIES

165-4: FISH

RATIONALE FOR SELECTING OPTION 7

Determination for the need for this data will be made after the confined (165-1) rotational crops studies are completed. Merck and Co., Inc. claim that these data are not applicable as significant concentrations of the active ingredient and/or its principle degradation products are NOT likely to occur in aquatic environments or organisms. Further determination can be made after the confined (165-1) rotational crop studies are completed.

Product labels and statement of confidential formulas are attached.

Thiabendazole: 135-Day Response to the
Comprehensive Data Call In Notice

V

PRODUCT LABELS
Registrant: Merck & Co., Inc.

- MERTECT 40 Water Dispersible Antimycotic: EPA Reg. No. 618-58
- MERTECT Fungicide: EPA Reg. No. 618-67
- MERTECT 340-F Fungicide: EPA Reg. No. 618-75
- MERTECT LSP Fungicide: EPA Reg. No. 618-84
- MERTECT DF Fungicide: EPA Reg. No. 618-92

Page _____ is not included in this copy.

Pages 15 through 16 are not included.

The material not included contains the following type of information:

- ☐ Identity of product inert ingredients.
- ☐ Identity of product impurities.
- ☐ Description of the product manufacturing process.
- ☐ Description of quality control procedures.
- ☐ Identity of the source of product ingredients.
- ☐ Sales or other commercial/financial information.
- ☒ A draft product label.
- ☐ The product confidential statement of formula.
- ☐ Information about a pending registration action.
- ☐ FIFRA registration data.
- ☐ The document is a duplicate of page(s) _____.
- ☐ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

Product

48015

Flowable

(Water Dispersible Suspension)

MERTECT 340-F

FUNGICIDE

Active Ingredient—3.8% Diquat
2-(4-Thiazolyl)
benzimidazole, 42.28%
Inert Ingredients... 57.72%

**PRECAUTIONARY
STATEMENTS**

EPA Reg. No. 37453-04-01

EPA Reg. No. 699-75-04

**Hazards to Humans and Domestic Animals
KEEP OUT OF REACH OF CHILDREN**

CAUTION

WARNING: IF SWALLOWED • CAUSES EYE AND SKIN IRRITATION

Avoid contact with eyes, skin and clothing.

Wash thoroughly with soap and water after handling.

Statements of Precaution Treatment

If Swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. **If In Eyes:** Flush eyes with plenty of water. Call a physician if irritation persists. **If on Skin:** Wash with plenty of soap and water. Get medical attention if irritation persists.

Environmental Hazards

This pesticide is toxic to fish. Do not apply when weather conditions favor runoff or drift from the target area. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

See Other Panels for Additional Directions for Use

2 GALLONS (7.57 L)

ACCEPTED

with COMMENTS
in EPA Letter Dated

JUN 11 1983

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

619-75

WHEAT—Control of Cercospora Foot Rot: Apply MERTECT 340-F after the development of 2-3 tillers but prior to the time the first roots are visible in the Spring. Aerial Application: Apply 18-24 fluid ounces of MERTECT 340-F in a minimum of 5 gallons water per acre. GROUND Application: Apply 18-24 fluid ounces of MERTECT 340-F per acre in sufficient water for coverage. Use the high rate in fields with a previous history of foot rot. Do not allow livestock to graze or feed on treated green wheat forage.

WHEAT—To Reduce the Severity of Glume Blight: Apply MERTECT 340-F at 8 to 12 lb per acre per application. For aerial application use a minimum of 5 gallons of water per acre. Make the first application when flag leaf first emerges, repeat application 10 to 14 days later. Use the higher rate under conditions of heavier disease pressure. Do not make more than a total of two later applications of MERTECT 340-F in any one season. Do not allow livestock to graze or feed on treated green wheat forage.

STORAGE AND DISPOSAL

Storage Instructions—Store MERTECT 340-F in a cool, dry place away from food, drink, and animal feeding stuffs. DO NOT STORE BELOW 32°F (0°C)

Pesticide Disposal—Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal—Triple rinse (or equivalent). Then offer for recycling or reconditioning, or purchase and dispose of in a sanitary landfill, by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

NOTICE OF WARRANTY—The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of MSD AGVET or the Seller. All such risks shall be assumed by the Buyer.

MSD AGVET warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks related to above. Buyer assumes all risks of use and handling which are at variance in any way with the directions herein. MSD AGVET makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall MSD AGVET or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. MSD AGVET and the Seller disavow this product and the Buyer and user accept it, subject to the foregoing Notice of Warranty which may be varied only by agreement in writing signed by a duly authorized representative of MSD AGVET.

U.S. Pat. 3,370,957

8608708

MSD AGVET

Division of MERCK & CO., INC.
Kenilworth, New Jersey 07033, U.S.A.

DIRECTIONS FOR USE

It is a violation of Federal (U.S.A.) law to use this product in a manner inconsistent with its labeling.

GENERAL—SHAKE OR STIR WELL BEFORE USE.

MERTECT 340-F is a systemic fungicide recommended for the control of many important plant diseases. If treatment is not effective following use of MERTECT 340-F as recommended, a latent strain of fungus may be present. Consideration should be given to prompt use of other suitable fungicides.

When equipment before using MERTECT 340-F, when MERTECT 340-F is dispersed in water, the resulting suspension must be consistently agitated. Acid bearing.

Use the higher recommended rates under conditions of heavier disease pressure.

Compatibility information for MERTECT 340-F with other chemicals is limited. Consult your supplier or agricultural experiment station for specific recommendations.

See supplemental labeling entitled "MERTECT® 340-F for Chemigation Application" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

CARROTS—Control of *Botrytis* Cane Gray Mold and *Sclerotinia sclerotiorum* (Sclerotinia Rot): Dip carrots, before storage, for 5-10 seconds in a suspension containing 42.8 oz of MERTECT 340-F per 100 gal of water. Refresh the suspension when the volume is too low or when it becomes dirty.

The run-off and residue from the dipping operation should not be discarded in a drainage which could contaminate public water systems.

DRY BEANS—Aids in the Control of White Mold (*Sclerotinia sclerotiorum*): Apply 16-32 fl oz of MERTECT 340-F in a minimum of 5 gallons of water per acre. Make the first application when beans are at 10% bloom. Repeat application at peak bloom. Do not make more than 2 applications per season. Do not treat within 28 days of harvest. Do not graze or feed foliage from treated areas to livestock. Do not tank mix with copper fungicides.

MUSHROOMS (*Agaricus* sp.)—To Aid in the Control of Dry Bubble (*Verticillium fungicola*), Wet Bubble (*Phytophthora perniciosa*), *Ganoderma* (*Phytophthora* spp.) and Green Mold (*Phytophthora* spp.): Apply in water during normal watering or in a hand sprayer. MERTECT 340-F may be applied at cutting, hazing, pinning and between breaks. A maximum of 30 fl oz of MERTECT 340-F per 1000 ft² may be applied to each crop. The first dose may contain up to 6 fl oz per 1000 ft². Subsequent doses should not exceed 4 fl oz per 1000 ft². Do not apply within 12 hours prior to harvest.

ORNAMENTAL BULBS AND CORNS—Control of *Penicillium* Blue Mold and *Botrytis* Blue Mold: Clean and treat bulbs or corns within 24-48 hours of digging. Prepare suspension of 30 fl oz of MERTECT 340-F per 100 gal water. Submerge stock completely in dipping solution. Submerge temperature should be 55-75°F (13-24°C). Discard suspension (1) when it becomes dirty, (2) after using two times, or (3) after 24 hours, whichever occurs first.

Peonies (Bulbs and Corms): Dip bulbs 15-30 minutes, corms 15 minutes.

Blue Mold (Bulbs): Dip 10-15 minutes.

After treatment, dry bulbs or corms in a shaded, well ventilated area. Curing or retarding may precede or follow treatment.

POTATO—Control of *Peridermium* Tuber Rot: Mix unashed tubers on a conveyor line, with tumbling action, entering storage with 0.42 fl oz of MERTECT 340-F to each 2000 lb of tubers in sufficient water for complete coverage. If an additional treatment is necessary before shipping, mist the tubers at the same rate or dip the tubers for 20 seconds in a solution containing 0.42 fl oz of MERTECT 340-F per gallon of water. Seed potatoes should be treated before cutting.

POME FRUIT (Apples and Pears)—Control of Blue Mold Rot, Buds Eye Rot, and Gray Mold (Nail Rot, Cluster Rot, Stem End and Neck Rot): Dip, load, or spray harvested fruit with a suspension of 10 fl oz MERTECT 340-F in 100 gal water. Do not treat for over 3 minutes. Treat apples only before and after storage for maximum decay control. Treat pears once.

RICE—Reduce Severity of Rice Blast, Stem Rot, Sheath Blight, and Brown Brown Leaf Spot: Apply MERTECT 340-F at 6.0-12.0 fl oz per acre per application in sufficient water for coverage (minimum of 5 gallons of water per acre for aerial application). Make two applications per season, the first application at boot initiation followed by a second application 14-21 days later. Use the higher rate when disease infestations are moderate to severe. Do not use in California.

SOYBEANS—Reduce the Severity of Pod and Stem Blight, Anthracnose, Brown Spot, Frog Eye Leaf Spot and Purple Seed Blem: Make a single application of MERTECT 340-F at 6.0-10.0 fl oz per acre per application in sufficient water for coverage. Make two applications per season, the first application at late flowering to early pod set and the second application two weeks later. Make aerial applications in a minimum of 5 gallons of water per acre. Do not apply MERTECT 340-F within 21 days of harvest. Do not graze or feed treated soybean vines or hay to livestock. Do not tank mix with copper fungicides.

SOYBEANS GROWN FOR SEED PURPOSES—To Improve Seed Quality by Reducing the Severity of Pod and Stem Blight, Anthracnose, Brown Spot, Frog Eye Leaf Spot and Purple Seed Blem: Make a single application of MERTECT 340-F at 6.0-10.0 fl oz per acre to soybeans at growth stage R6 (pod full) in sufficient water for coverage. Make aerial application in a minimum of 5 gallons of water per acre. Use higher rates when disease potential is high as a result of greater than normal rainfall in August. Do not apply MERTECT 340-F within 21 days of harvest. Do not graze or feed soybean vines or hay to livestock.

SUGAR BEETS (Post Harvest Treatment)—Reduce Rot Caused by *Penicillium*, *Botrytis*, and *Peridermium* Species: Mix sugar beet roots as they enter storage with 0.42 fl oz of MERTECT 340-F to each 2,000 lb of sugar beet roots in sufficient water for complete coverage. (0.42 fl oz of MERTECT 340-F is equivalent to 0.2 oz of 2-4-Thiazole) ben-zimidazole) Roots should be treated within 72 hours after lifting.

SWEET POTATO "SEED ROOTS"—Control of Black Rot, Scurf, and Foot Rot: Dip the seed roots in a suspension containing 8 fl oz MERTECT 340-F per 7.5 gal water (107 fl oz per 100 gal). Treat the seed roots for 1-2 minutes and plant immediately. Discard the suspension when the volume is too low or when it becomes dirty. Do not use the treated roots for food or feed.

MERTECT® 340-F

SUPPLEMENTAL LABELING FOR CHEMIGATION APPLICATION

THROUGH CENTER PIVOT SPRINKLER IRRIGATION SYSTEMS

Pesticide: Thiabendazole

Product 48015

Formulation: MERTECT® 340-F Fungicide (EPA Reg. No. 618-75)

DIRECTIONS FOR USE

It is a violation of Federal (U.S.A.) law to use this product in a manner inconsistent with its labeling.

For specific rates of application, see container label.

Apply this product through ~~sprinkler~~ center pivot irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make the necessary adjustments should the need arise.

Constant slurry or nurse tank agitation is required.

Apply MERTECT 340-F continuously for the duration of the irrigation period.

For mixing instructions to determine amount of MERTECT 340-F required, select the desired rate (see container label) and multiply by the number of acres to be treated and add to proper volume of water in nurse tank.

Apply this product in the equivalent of 0.1–0.2 inches of water per acre.

SYSTEM REQUIREMENTS FOR SPRINKLER CHEMIGATION CENTER PIVOT

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

IMPORTANT

BEFORE USING MERTECT 340-F, READ AND CAREFULLY OBSERVE THE PRECAUTIONARY STATEMENTS AND ALL OTHER INFORMATION APPEARING ON THE PRODUCT LABEL.

This supplemental label contains new instructions for the use of this product which may not appear on the package label. Follow these instructions carefully.

This label must be in the possession of the user at the time of application.

MERTECT REG TM MERCK & CO., INC.
8712100



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Page 20 is not included in this copy.

Pages _____ through _____ are not included.

The material not included contains the following type of information:

- ☐ Identity of product inert ingredients.
- ☐ Identity of product impurities.
- ☐ Description of the product manufacturing process.
- ☐ Description of quality control procedures.
- ☐ Identity of the source of product ingredients.
- ☐ Sales or other commercial/financial information.
- ☒ A draft product label.
- ☐ The product confidential statement of formula.
- ☐ Information about a pending registration action.
- ☐ FIFRA registration data.
- ☐ The document is a duplicate of page(s) _____.
- ☐ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

Product 48016

MERTECT® DF

FUNGICIDE

(Water Dispersible Granular)

Active Ingredient
2-(4-Thiazolyl) benzimidazole 89%
Inert Ingredients 11%
EPA Est. No. 34704-MD-02 EPA Reg. No. 618-92

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals
KEEP OUT OF REACH OF CHILDREN

WARNING

HARMFUL IF SWALLOWED OR INHALED.

Statements of Practical Treatment

Do not get in eyes or on skin. Avoid breathing dust. Wash thoroughly after handling.
FIRST AID: If Swallowed — Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. If In Eyes or on Skin — Flush with water; for eyes, get medical attention. If Inhaled — Remove victim to fresh air and get medical attention.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Do not apply when weather conditions favor runoff or drift from the target area. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

See Other Panel for Additional Directions for Use

NET WEIGHT 10 POUNDS

ACCEPTED
with COMMENTS
in EPA Letter Dated

11/1/80

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

618-92

NET WEIGHT 10 POUNDS

MERTECT® DF

Product: 43016

DIRECTIONS FOR USE

It is a violation of Federal (U.S.A.) law to use this product in a manner inconsistent with its labeling.

MERTECT® DF is a systemic fungicide recommended for the control of many important plant diseases. If treatment is not effective following use of MERTECT DF as recommended, a tolerant strain of fungus may be present. Consideration should be given to joint use of other suitable non-benzimidazole fungicides.

Clean equipment before using MERTECT DF. When MERTECT DF is dispersed in water, the resulting suspension must be constantly agitated. Avoid foaming.

Use the higher recommended rates under conditions of heavier disease pressure.

Compatibility information for MERTECT DF with other chemicals is limited. Consult your supplier or agricultural experiment station for specific recommendations.

See supplemental labeling entitled "MERTECT® DF for Chemigation Application" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

WHEAT — Control of Carposporella Foot Rot: Apply MERTECT DF after the development of 2-3 tillers but prior to the time the first node is visible in the spring. AERIAL Application: Apply 8-12 oz of MERTECT DF in a minimum of 5 gallons of water per acre. GROUND Application: Apply 8-12 oz of MERTECT DF per acre in sufficient water for coverage. Do not allow livestock to graze or feed on treated green wheat forage.

STORAGE AND DISPOSAL

GENERAL — Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container. Pesticide Disposal — Pesticide, spray mixture, or the rinse water that cannot be used according to the label instructions must be disposed of according to applicable Federal, State or local procedures. Container Disposal — If container is Plastic: Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. If container is Fiber Drum with Liner: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of both liner and drum in a sanitary landfill or by incineration if allowed by State and local authorities.

NOTICE OF WARRANTY — The Directions for Use of this product reflect the opinions of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of MSD AGVET or the Seller. Treatment may not be effective if tolerant strains of fungi develop. Use of alternate treatments should be considered if treatment with this product proves ineffective. All such risks shall be assumed by the Buyer.

MSD AGVET warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. Buyer assumes all risks of use and handling which are at variance in any way with the directions hereon. MSD AGVET makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall MSD AGVET or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. MSD AGVET and the Seller offer this product and the Buyer and user accept it, subject to the foregoing Notice of Warranty which may be varied only by agreement in writing signed by a duly authorized representative of MSD AGVET.

MSD AGVET

Division of MERCK & CO., INC.
Rahway, New Jersey 07065, U.S.A.

U.S. Pat. 3,370,957

8703601

SUPPLEMENTAL LABELING FOR CHEMIGATION APPLICATION

THROUGH CENTER PIVOT SPRINKLER IRRIGATION SYSTEMS

Pesticide: Thiabendazole

Product 48016

Formulation: MERTECT® DF (EPA Reg. No. 618-92)

DIRECTIONS FOR USE

It is a violation of Federal (U.S.A.) law to use this product in a manner inconsistent with its labeling.

For specific rates of application, see container label.

Apply this product through ~~any type of irrigation system~~ center pivot irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make the necessary adjustments should the need arise.

Constant slurry or nurse tank agitation is required.

Apply MERTECT DF continuously for the duration of the irrigation period.

For mixing instructions to determine amount of MERTECT DF required, select the desired rate (see container label) and multiply by the number of acres to be treated and add to proper volume of water in nurse tank.

Apply this product in the equivalent of 0.1–0.2 inches of water per acre.

CENTER PIVOT

SYSTEM REQUIREMENTS FOR SPRINKLER CHEMIGATION

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

IMPORTANT
BEFORE USING MERTECT DF, READ AND CAREFULLY OBSERVE THE PRECAUTIONARY STATEMENTS AND ALL OTHER INFORMATION APPEARING ON THE PRODUCT LABEL.

This supplemental label contains new instructions for the use of this product which may not appear on the package label. Follow these instructions carefully.

This label must be in the possession of the user at the time of application.

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