

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

002831

MEMORANDUM

Date: May 7, 1982

Subject: EPA Registration Number: 43410-2  
Fungicide T

EPA Registration Number: 43410-7  
Fungicide W

From: Deloris F. Graham  
FHB/TSS

To: Henry Jacoby  
Product Manager (21)

Applicant: Agri-Chem, Inc.  
P.O. Box 17477  
Orlando, FL 32860

Active Ingredients:  
2-(4-thiazoly-2)benzimidazole.....98.5%

Inert Ingredients.....1.5%

Background: Submitted Acute Inhalation Study as requested by the Agency. Study conducted by Tox Monitor Laboratories, Inc. Data under accession number 247276. Method of support not applicable.

Recommendation:

1. FHB/TSS finds this study acceptable to support conditional registration of this product.

Review:

1. Acute Inhalation Toxicity Study: Tox Monitor, Inc.; Report #TM 80-534A 1281; March 30, 1982.

Procedure: 5M and 5F Sprague-Dawley rats were exposed for four hours to 5 mg/l of the test material, but due to the physical properties of the test material only 4.1 mg/l were attainable. Since a mortality rate of 50% of the test animals was observed in the initial exposure, an additional test level was targeted at 2 mg/l for a four hour period. The gravimetric concentration of the second study was 2.03 mg/l. Observations were made twice daily for 14 days. Necropsy performed on all animals. In the second test, particle size ranged from 0.6 to 12.0 microns.

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Results: At 5 mg/kg, 1, 3/5 F and 2/5 M died. At 2 mg/kg, 2/5 F and 2/5 M died. Some animals appeared sluggish and nasal discharge was observed. Necropsy revealed whitish material similar to the test substance in stomach and gastrointestinal tract; lungs mottled. Histopathology revealed congestion of lungs with focal areas of alveolar and perivascular edema; desquamation of the respiratory epithelium in the large bronchicles; diffuse thickening of the alveolar walls; hydropic degeneration of the tubular epithelium; diffuse swelling of the remaining tubules. LC<sub>50</sub> for males greater than 2.03 mg/l and for females .02 mg/l.

Study Classification: Core Guideline Data.

Toxicity Category: III - CAUTION

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**CRCP DIRECTIONS**

**Citrus: Fruit Decay (Green Mold, Blue Mold, Stem-end Rot)** Postharvest - Disperse one unit in 55 gallons of water for a 1000 ppm treating dispersion. (Use of a wetting agent such as Agri Chem's WETTING AGENT T at 8 oz per 55 gallons is recommended.) Apply this dispersion as a flood or spray, at the rate of one gallon per 5,000 to 7,000 lbs of fruit, to previously washed and water eliminated fruit. Do not time fruit following treatment. If fruit is excessively wet at application, use two to five units per 55 gallons. See NOTE below.

Fungicide T may be used in citrus wash. Disperse one unit in 55 gallons of wash (1000 ppm) and apply to previously washed and dried fruit at the rate of one gallon per 5,000 to 10,000 lbs of fruit. For control of spotalation (*Penicillium spp.*) apply in citrus wash using 4 units Fungicide T.

Agitate wash and water suspension gently during application.

**Apples and Pears: Postharvest Rots (*Botrytis spp.*, *Penicillium spp.*)** Apply as a spray or drench one unit dispersed in 55 gallons of water. (Use of a wetting agent such as Agri Chem's WETTING AGENT T at 8 oz per 55 gallons is recommended.) Do not treat for more than 3 minutes. Treat only once, either before or after storage. Drain fruit thoroughly and do not rinse after treatment. Agitate the suspension gently when applying.

When apple wash is used, Fungicide T may be incorporated in the wash. Use one unit per 55 gallons of wash, agitate the suspension gently during application.

**Bananas: Postharvest (Crown Rot)** Prepare a suspension of one unit of Fungicide T in 275 gallons of water. (Use of a wetting agent such as Agri Chem's WETTING AGENT T at the rate of 40 oz per 275 gallons is recommended.) Keep suspension agitated while using. Treat debarked fruit after it has passed through the delectaring operation by dipping or drenching. When dipping, do not immerse for more than 5 minutes.

Notes: Fungi may develop resistance to thiabendazole. If such resistance is suspected, switching to a non thiabendazole fungicide is advised. Check with your supplier if confirmatory tests are desired.

If instructions are carefully followed fungicide residues in excess of legal tolerances are not to be expected. It is recommended that laboratory analysis for residues be made soon after initial start up of a new process or after any major changes in equipment. Consult your Agri Chem representative for assistance on this.

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**Warranty Statement**

Agri Chem, Inc. warrants that this material conforms to the ingredient statement on the label and is reasonably fit for the purposes referred to in the Directions for Use. No other warranty, express or implied, is made. This includes any other express or implied warranty of FITNESS or MERCHANTABILITY, and no agent of Agri Chem, Inc. is authorized to do so except in writing, with a specific reference to this warranty. Any damages arising from a breach of this warranty shall be limited to direct damages, and shall not include consequential damages, such as loss of profits or values.

# Fungicide T

A Fungicide for the Postharvest Treatment of Citrus, Apples, Pears, Bananas.

ACTIVE INGREDIENT:  
2-(4-thiazolyl) benzimidazole ..... 98.5%  
INERT INGREDIENTS: ..... 1.5%

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See Side Panel For Additional Precautionary Statements

**ACCEPTED**

Agri-Chem, Inc.  
Orlando, FL 32860

U.S. Dept. of Agriculture  
Federal Insecticide, Fungicide, and Rodenticide Act  
EPA Reg. No. 45102  
EPA Est. No. 1-44-10

Net Contents: 7.5 or 10.0 lbs. out of 2 1981

**Precautionary Statements**

Hazards to Humans and Domestic Animals

**CAUTION**  
**HARMFUL IF SWALLOWED**  
Avoid contact with skin, eyes or clothing.

**FIRST AID**

If in eyes: Flush with water 15 minutes. Get medical attention if irritation persists.  
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 if you are anything by mouth to an unconscious person.

**ENVIRONMENTAL HAZARDS**

This product is toxic to fish. Do not apply directly to lakes, streams, or ponds. Do not contaminate water by cleaning of equipment or disposal of water. Do not dump where surface or subsurface waters may become polluted.

**PHYSICAL AND CHEMICAL HAZARDS**

Do not store or use in presence of fire, sparks or other flammable devices. Do not ignite explosively.

**DIRECTIONS FOR USE**

Use in a violation of Federal law to use this product in a manner inconsistent with its label.

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal.

Storage: Store at ambient temperature in a dry place.  
Container Disposal: Periodic spray mixture containers that cannot be used according to label instructions must be disposed of according to Federal, State or local regulations under the Resource Conservation and Recovery Act.  
Container Disposal: Paper and plastic bags: Dispose of bags according to approved Federal, State and local procedures under the Resource Conservation and Recovery Act.

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### Precautionary Statements

Hazards to Humans and Domestic Animals

**CAUTION**  
**HARMFUL IF SWALLOWED**

Avoid contact with skin, eyes or clothing.

#### FIRST AID

If in eyes: Flush with water 15 minutes. Get medical attention if irritation persists.  
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 if vomit is bloody or contains blood.  
If on skin: Wash with soap and water. Do not use any oil-based ointments.

#### ENVIRONMENTAL HAZARDS

Do not apply to water, fish, or birds. Do not apply to lakes, streams, or ponds. Do not contaminate water by cleaning of equipment or disposal of waste. Do not dump where surface water may become polluted.

#### PHYSICAL AND CHEMICAL HAZARDS

Do not use in presence of fire, sparks, or open flames. Do not use in areas producing static. Do not mix with other chemicals.

#### DIRECTIONS FOR USE

Use in accordance with label directions. Do not use in a manner inconsistent with its label.

#### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Store in original container in a cool, dry place. Do not store in areas where food or feed is stored. Do not use in areas where food or feed is stored. Do not use in areas where food or feed is stored. Do not use in areas where food or feed is stored.

Dispose of contents in accordance with label directions. Do not use in a manner inconsistent with its label.

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# Fungicide 4T

A fungicide for the postharvest treatment of Citrus, Apples, Pears, Bananas, Potato Seed Tubers and Sweet Potato Seed Pieces.

ACTIVE INGREDIENT:  
2-(4-thiazolyl)benzimidazole ..... 98.5%  
INERT INGREDIENTS: ..... 1.5%

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See Side Panel For Additional Precautionary Statements

RECEIVED

SEP 20 1966

Agri-Chem, Inc.  
Orlando, FL 32860

Net Contents: 16.0 L (4.25 Gal)  
EPA Reg. No. 100-1077  
EPA Est. No. 100-1077

### CROP DIRECTIONS

**Citrus: Fruit Decay (Blue Mold, Green Mold, Stem-end Rot) Postharvest** - Disperse one unit in 220 gallons of water for a 1000 ppm treating dispersion. (Use of a wetting agent such as Agri-Chem's WETTING AGENT T at 5% or per 100 gallons is recommended.) Apply this dispersion to fruit, to previously washed and water-eliminated fruit. Do not rinse fruit following treatment. If fruit is excessively wet at application, use two to five units per 100 gallons. See NOTE below.

Fungicide 4T may be used in citrus wash. Disperse one unit in 220 gallons of water (1000 ppm) and apply to previously washed and dried fruit at the rate of one gallon per 1,000 lbs of fruit. For control of sporulation (Penicillium spp.) apply in citrus wash using one unit Fungicide 4T per 55 gallons. Agitate wash and water suspensions gently during application.

**Apples and Pears: Postharvest Rot (Botrytis spp., Penicillium spp.)** Apply as a spray or drench one unit dispersed in 220 gallons of water. (Use of a wetting agent such as Agri-Chem's WETTING AGENT T at 5% or per 100 gallons is recommended.) Do not treat for more than 3 minutes. Treat only once, either before or after storage. Drain fruit thoroughly and do not reuse after treatment. Agitate suspension gently during use. When apple wash is used, Fungicide 4T may be incorporated into the wash. Use one unit per 220 gallons of wash. Agitate the suspension gently during application.

**Bananas: Postharvest (Crown Rot)** Prepare a suspension of one unit Fungicide 4T in 1100 gallons of water. Use of wetting agent such as Agri-Chem's WETTING AGENT T at the rate of one gallon per 1100 gallons is recommended. Keep suspension agitated while using. Treat detached fruit after it has passed through the defolting operation by dipping or drenching. When dipping, do not immerse for more than 5 minutes.

**Potatoes (Seed tubers only): Fusarium Tuberculosis** Mix tubers on a conveyor line, with tumbling action, entering storage with one gallon of suspension (one unit Fungicide 4T per 150 gallons) to each 8000 lbs of tubers.

If an additional treatment is necessary before shipping and cutting the seed tubers, dip the tubers for 20 seconds or mist at the same rate. (Use of a wetting agent such as Agri-Chem's WETTING AGENT T at the rate of 2% or per 150 gallons is recommended.) Agitate suspension while using. Do not use treated seed for food or feed purposes.

**Sweet Potato - (Seed roots only): (Black Rot, Foot Rot, Scurf)** Dip seed roots in a suspension of one unit per 45 gallons (Use of a wetting agent such as Agri-Chem's WETTING AGENT T at 5% or per 45 gallons is recommended.) Plant immediately. Do not use treated seed roots for food or feed. Treat the seed root for one or two minutes and discard suspension when volume becomes too low or suspension becomes dirty.

**NOTE:** Fungi may develop resistance to thiazolazole. If such tolerance is suspected, switching to a non-benzimidazole fungicide is advised. Check with your supplier if confirmatory tests are desired.

If instructions are carefully followed fungicide residues in areas of legal tubers are not to be expected. It is recommended that laboratory analysis for residues be made soon after initial start up of a new piece of or after any major change in equipment. Consult your Agri-Chem representative for assistance on this.

### Warranty Statement

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