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PM 21

100-835

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:

100-835

Date of Issuance: MAY 1 1997

Term of Issuance:

Unconditional

NOTICE OF PESTICIDE:

Registration

Reregistration

Name of Pesticide Product:

Thiolux Dry Flowable
Micronized Sulfur

(under FIFRA, as amended)

Name and Address of Registrant (include Zip Code):

Mr. Lee Hubbard
Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, N.C. 27419

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

Based on your response to the Reregistration Eligibility Document, EPA has reregistered the product listed above. Enclosed is a copy of your label stamped "Accepted". This action is taken under the authority of section 4(g)(2)(C) of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain registration of your product.

Signature of Approving Official:

Carl Grable for PM21

Date: MAY 1 1997

THIOLUX

DRY FLOWABLE MICRONIZED SULFUR

ACTIVE INGREDIENT:

Sulfur 80%

INERT INGREDIENTS: 20%

100%

KEEP OUT OF REACH OF CHILDREN

ACCEPTED

CAUTION

**SEE PRECAUTIONARY STATEMENTS
AVOID BREATHING SPRAY MIST**

MAY 1 1997
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 100-835

STATEMENT OF PRACTICAL TREATMENT

If on skin: Wash with soap and plenty of water. Get medical attention.

If in eyes: Flush eyes with plenty of water for at least fifteen minutes and get medical attention.

If inhaled: Remove victim to fresh air.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if inhaled or absorbed through skin. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

EPA Est. No. 36841-FR-01
EPA Reg. No. 55947-48

Net Weight: 50 lb.

SANDOZ AGRO, INC.
1300 E. Touhy
Des Plaines, IL 60018

MADE IN FRANCE

Personal Protective Equipment:

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering controls statements:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water by cleaning of equipment and when disposing of equipment washwaters.

PHYSICAL AND CHEMICAL HAZARDS

Sulfur dust suspended in air ignites easily. Keep away from heat, sparks, and flame. Do not smoke while applying this product.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

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AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

THIOLUX is recommended for control of listed plant diseases, insects and spider mites on fruits, vegetables, and ornamentals when used as directed. Additionally, THIOLUX is an readily available source of sulfur, a necessary plant nutrient.

USE PRECAUTIONS

Some crops are susceptible to injury from sulfur under certain climatic conditions. The user is advised not to use on any crop unless local use has proven sulfur to be safe in that locality. Sulfur may burn foliage or cause fruit injury when temperatures are excessively high. Do not apply at such times. Do not apply to or allow spray drift on sulfur sensitive plants such as apricots, cranberries, spinach. Apply only to dormant Anjou pears. Do not use within two (2) weeks of an oil treatment, except for dormant sprays on pears and apples. For citrus, do not apply within 21 days of an oil application. Follow all other label directions or precautions as indicated. When growing crops for processing consult processor before applying sulfur.

NUTRIENT USE

THIOLUX applications will provide sulfur for the plants' nutrient requirements and should be considered in the total plant nutrient applications. THIOLUX can be used as a micronutrient supplement by either foliar or soil application. THIOLUX is recommended but not limited to use on the following crops: Alfalfa, almonds, avocados, apples, barley, all beans, broccoli, cabbage, cauliflower, carrots, citrus, corn, grapes, lawns, melons, nectarines, pears, peaches, peppers, plums, prunes, potatoes, peanuts, sorghum, soybeans, sugar beets, strawberries, tomatoes, turnips, walnuts, watermelons, and wheat and most other crops. Consult your State Agricultural Experimental Station or Extension Specialist for advice in selecting treatments to best fit local conditions.

DIRECTIONS FOR APPLICATION

Fill spray tank half full with water. Pour needed amount into spray tank under agitation. If necessary, add a few drops of oil to avoid foaming. Maintain agitation throughout spray operation.

Use lower recommended rates on following host and pest recommendation table when using concentrate equipment. Use higher rates when using dilute applications.

Dilute Application:

Ground Application - Apply specified rate in 20 to 60 gallons of water per acre.
Orchard Application - Apply specified rate in 100 to 800 gallons of water per acre.

Concentrate Application:

Ground Application - Apply specified rate in 5 gallons or more water per acre.
Orchard Application - Apply specified rate in 20 to 100 gallons of water per acre.
Special concentrate equipment is necessary for these uses.

Aerial Application:

Apply specified rate in 3 to 20 gallons of water per acre. Orchard rates should not be applied in less than 10 gallons of water per acre.

Chemigation:

THIOLUX may be applied through sprinkler systems including center pivot, lateral move, end tow, side wheel roll, traveler, big gun, solid set, and hand move. Do not apply THIOLUX through any other type irrigation system. Do not apply Thiolut through any irrigation system when wind speed favors drift beyond the area intended for treatment.

Crop injury or lack of effectiveness can result from uneven distribution of treated irrigation water. For center pivot systems apply during one full revolution of the system. For other systems listed above (i.e., portable or solid set systems), apply during the final 15 minutes of the irrigation period. Do not operate irrigation system after application until deposit has thoroughly dried. If you have questions about system operation or calibration, contact State Extension Service specialists or chemigation equipment manufacturers.

THE FOLLOWING PRECAUTIONS MUST BE OBSERVED WHEN APPLYING PESTICIDES AND PLANT NUTRIENTS THROUGH IRRIGATION SYSTEMS:

- * 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 necessary adjustments should the need arise. 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. Public water system means any system for provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- * Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public

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water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

- * The pesticide injection system 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 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 shuted down.
- * The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, 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.
- * 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 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.

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Thiolux Application Rates by Crop and Pest		
Crop	Pest	lb/A
Field Crops, Orchard Crops, Vegetables		
alfalfa, cotton - apply as needed.	Atlantic mite, Red spider mite	3-5
almonds, cherries, nectarines, peaches, plums, prunes - Apply at bloom or early petal fall. Repeat as necessary, usually 10 to 14 days after a period of wet weather. For brown rot of fruit, apply when fruit starts to ripen. For rust of peaches and prunes, apply anytime from late spring to fall in a preventative program.	brown rot blossom blight, cherry leafspot, powdery mildew, rust, scab, leafspot, silver mite, flat mite, red spider mite	10-30
apples, pears - Apply at pre-bloom and petal fall. Apply with cover sprays throughout the season. Dormant applications with oil may be made to apples and pears. Apply to Anjou pears only while dormant.	powdery mildew, scab, blister mite, red spider mite	10-30
asparagus - Apply after cutting stops. Irrigate and cultivate before applying; repeat at 7 to 10 day intervals throughout the season.	rust	10-30
avocados - Apply as needed.	brown mite	10-30
barley, corn, oats, rye, sorghum, soybean, wheat, - Apply when disease first appears and repeat as necessary or with the regularly scheduled insect control program.	suppression - red spider mite, two-spotted mite, grass banks mite, Pacific mite; control - Atlantic mite (small grain only).	6
	powdery mildew (soybean only)	7.5-12
beans, peas, potatoes, rutabagas, turnips - Begin applications in early leaf stage. Repeat application every 10 to 14 days with or without pesticides immediately after rainfall.	powdery mildew, rust red spider mite	3-10
broccoli, brussel sprouts, cabbage, cauliflower, collards, kale, peppers - Begin applications in early leaf stage. Repeat application every 10 to 14 days with or without pesticides immediately after rainfall.	powdery mildew, rust, red spider mite	3-5

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blackberries, boysenberries gooseberries, loganberries	powdery mildew	6-15
- Begin application when new shoots are 6 in long and before blossoms open or when disease first appears. Repeat at 7 to 10 day intervals or as necessary.		
blueberries, currants, dewberries, huckleberries	powdery mildew	5-10
- Begin application when new shoots are 6 in long and before blossoms open or when disease first appears. Repeat at 7 to 10 day intervals or as necessary.		
carrots, garlic, onions	Petrobia mite and powdery mildew	3-10
- Apply when the disease first appears and repeat as needed.		
citrus	flat mite, aardvark mite, silver mite, rust mite, bud mite, red spider mite, six spotted mite, thrips, yuma spider mite	8-20
- Apply in any spray NOT CONTAINING OIL or 21 days following oil treatment within 21 days.		
cucurbits - cucumbers - melons - squash	powdery mildew	4-6 6-15 4-10
- Begin application when disease first appears. Repeat at 10 to 14 day intervals or as necessary throughout the growing season. Sulfur can injure plants, especially when temperatures reach 95 F. Do not use on sulfur sensitive varieties.		
grapes	powdery mildew, bud mite, blister mite, red spider mite	6
- Begin application in late dormant stage or with cutworm spray in early shoot period. Repeat throughout season on 14 day schedule or with pesticides.		
mangoes	powdery mildew	10-30
- Begin applications before bloom, repeat in-bloom, after fruit set, and 3 weeks later or as necessary.		
peanuts	rust, red spider mite, leaf spot	3-5
- Begin application in early leaf stage. Repeat applications as necessary, usually in 10-24 days.		
peppermint, spearmint	powdery mildew	4-6
- Apply when mint is 5-6 in tall or when disease appears. Repeat twice at 30 day intervals. Do not apply within 30 days of harvest.		
pistachio	citrus flat mite	10-30
- Begin application when mites are first detected. Repeat applications as necessary.		
raspberries	powdery mildew	6-15
- Apply weekly starting at first bloom color. Continue throughout fruit set; repeat as weather requires.		

strawberries	powdery mildew, red spider mite	5-10
- Begin application in early leaf stage, repeat application with or without pesticides. For powdery mildew, begin at first signs of disease and repeat as necessary. Do not use on sulfur sensitive varieties.		
sugar beets	powdery mildew, red spider mite	10-20
- Apply at 10-30 day intervals with or without other pesticides at first symptoms.		
table beets	powdery mildew, red spider mite	3-5
- Apply at 10-30 day intervals with or without other pesticides at first symptoms.		
tomatoes	russet mite, powdery mildew	8-20
- Apply at first symptoms. Thorough coverage is required.		
walnuts	Pacific mite, almond mite, two-spotted mite, red spider mite	10-20
- Apply and repeat as necessary throughout season as necessary. Tank mix with chemical mite sprays to increase effectiveness. CAUTION - Certain varieties of walnuts are sensitive to sulfur sprays under certain conditions. Do not apply unless the varieties are known to be tolerant of sulfur.		
Ornamentals, Grass Seed Production		
Ornamentals - all (see below for host and pest)		(ground) all = 3-10 (air) all = 3-20
- Apply as aqueous spray for complete plant coverage. Begin when disease first appears and repeat at 5 to 10 day intervals as necessary		
asters, carnations, cosmos, crepe myrtle, dahlia, delphinium, gladiolus, ligustrum, sunflowers, sweet peas, violets, zinnias	powdery mildew	
calendula, cherry laurels, chrysanthemums, hollyhock, smilax	leaf spot, powdery mildew	
clematis, columbine, English ivy, laurel, petunia, sage	leaf spot	
roses	black spot, powdery mildew	
grass grown for seed	rust	3-5
- Apply in tank-mix with TILT® fungicide for enhanced control of rusts. Begin applications when rust pustules are evident and increasing in number from late spring through early summer. Do not exceed 12 lb/A THIOLUX per season. Read and follow all application rates and use precautions on companion fungicide label. Do not apply this tank mix through any irrigation system.		

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STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Must be stored under dry conditions.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke

WARRANTY AND CONDITIONS OF SALE

Limited Warranty and Liability

Sandoz Agro, Inc. warrants that the chemical composition of this product conforms to the chemical description on the label and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use. Sandoz makes no other warranty, express or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given on the label.

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