

107901

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EEE BRANCH REVIEW

DATE: IN 1/16/76 OUT 3/20/76 IN _____ OUT _____
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 239-EUGL

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED Jan. 5, 1975

DATE OF SUBMISSION Dec. 23, 1975

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCT(S): I, D, H, (F), N, R, S Systemic Fungicide

PRODUCT MGR. NO. Wilson #21

PRODUCT NAME(S) Ortho Rose Disease Control

COMPANY NAME Chevron Chemical Co. - Ortho Division

SUBMISSION PURPOSE Registration for use on Roses

CHEMICAL & FORMULATION Triforine - N,N'-[1,4-piperazinediyl bis (2,2,2-trichloro-ethylidene)] bis (formamide). 6.5% by wt.

239-EUGL
Triforine

Environmental Safety Review

100.0 Pesticidal Use:

Systemic fungicide for use on roses to control black spot, powdery mildew and rust.

100.1 Application methods/directions and rates:

ORTHO Rose Disease Control contains the active ingredient Triforine, an effective new systemic fungicide which will control and prevent black spot, powder mildew and rust - the three most important diseases of roses. Used as directed, ORTHO Rose Disease Control will not harm rose flowers or foliage. In addition to roses, powdery mildew on crapemyrtle, phlox and zinnias will also be controlled.

Directions

Use ORTHO Rose Disease Control at the rate of 1 Tablespoonful (1/2 fl. oz.) per gallon of water. Spray thoroughly to cover all plant surfaces (both upper and lower leaf surfaces) including new growth. For best results apply with an ORTHO SPRAY-ETTE, ORTHO Lawn & Garden Sprayer or pump-up sprayer. Do not store diluted spray. Use mixture at once. Does not required the addition of wetting agents.

When to Use

To prevent disease, begin spraying with ORTHO Rose Disease Control when first sign of listed diseases appear in the spring. Apply every 7 to 10 days during the spring and fall. However, if weather conditions that encourage the growth and spread of the disease causing fungi occur during the summer months, it may be necessary to continue spraying throughout the growing season.

NOTE: If infection has already occurred on the plants at time of spraying, follow a 7 day application schedule to control the fungus. Then continue on a 7 to 10 day application schedule to prevent re-establishment of the disease. Leaves on which spots have already developed will not clear up, but the unaffected leaves will be protected if a regular spray program is followed.

Combination Spray with Insecticides on Roses - ORTHO Rose Disease Control may be mixed with ISOTOX Insect Spray, or ORTHENE Systemic Insect Spray, or ORTHO Malathion 50 Insect Spray, or ORTHO DIAZINON Insect Spray, or ORTHO Liquid SEVIN. Follow directions on each label for insect control. Apply these mixtures only when both an insect(s) and a disease(s) claimed on the labels are present.

101.0 Chemical and physical properties:

No data submitted - the following data taken from previous review by J. Edmundson - dated 4-11-75.

101.1 Chemical name: N,N'-[1,4-piperazinediyl bis (2,2,2-trichloro-ethylidene)] bis (formamide)

101.2 Common name: Triforine; Funginex

101.3 Structural formula:

Empirical formula: $C_{10}H_{14}Cl_6N_4O_2$

101.4 Molecular weight: 435

101.5 Physical state, color, odor: apparently fine-white powder with faint odor (tech.)

101.6 Solubility: in H_2O is 28 ppm at room temperature.

102.0 Behavior in the environment: no data submitted - the following data taken from J. Edmundson's review of 4-11-75.

102.1 Soil: 1/2 life ~ 2 weeks (slower in dry seasons) degradation is probably chemical rather than biological. Parent compound may not leach; but metabolites appear to be fairly mobile in soil.

102.2 Water: rapid degradation in water (2 days - 1 week).

102.3 Plant: Uptake by roots and transported to aerial portions of plant with half-life of 9-10 days (study done with 3 week old barley plants after a soil drench).

102.4 Animal: 96% of dose was excreted through urine and feces after 72 hours in the rat.

103.0 Toxicological properties: The only data to accompany the submission is an 8-day dietary LC_{50} utilizing bobwhite quail; the remainder of the data is taken from J. Edmundson's review of 4-11-75.

103.1 Acute toxicity

103.1.1 Mammal

103.1.2 Bird

bobwhite quail	8-day dietary LC ₅₀ = 1849 (1142-2994) ppm
mallard duck	8-day dietary LC ₅₀ = > 4640 (no deaths at highest levels tested)

103.1.3 Fish

bluegill sunfish	96 hour LC ₅₀ = > 1000 ppm (n.e. at this level)
rainbow trout	96 hour LC ₅₀ = > 1000 ppm (n.e. at this level)
guppy	50 ppm - no effect in guppies

rainbow trout - bioaccumulation study - 1 ppm

- 1) while living in treated water, fish contain .13-.26 ppm triforine and its degradation products
- 2) 30 days after exposure ended, the fish contained .05 ppm.
- 3) at end of exposure (32 days), the fish contained .15 ppm which were exclusively strong polar degradation products (not triforine)

* no additional data available for review

104.0 Hazard assessment

104.1 Discussion: No hazards are expected to occur with the proposed use.

104.1.1 Adequacy of toxicity data: satisfactory

104.1.2 Additional data required: The routing sheet from the PM (#21) states that the review is subject to the revised section 3 regulations, as such, the following data is required (submit or initiated waivers):

- Bobwhite quail LD₅₀ = > 6,000 mg/kg (1-2)*
- 1) An avian acute oral LD₅₀ utilizing either mallard duck or bobwhite quail. The bobwhite quail acute oral was requested by J. Edmundson in his review dated 4-11-75. 4/14/76
 - 2) An acute LC₅₀ study on an aquatic invertebrate, preferably for daphnia.

104.1.3 Likelihood of exposure to nontarget organisms: minimal and does not trigger any concerns.

105.0 Conclusions:


Submit the required toxicity data as stipulated in the Section III regulations (refer to section 104.1.2).

Modify the present environmental precautionary statements to read as follows:

Keep out of lakes, ponds and streams.

Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this...

These precautionary statements must appear in a separate paragraph apart from other precautionary statements and/or use directions, under the heading: Environmental Hazards.


Scott Fredericks 3/20/76
Environmental Safety
Efficacy and Ecological Effects Branch