

US EPA ARCHIVE DOCUMENT



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

22 MAR 1993

22 MAR 1993

OFFICE OF PREVENTION,
PESTICIDES AND TOXIC
SUBSTANCES

DP Barcode: D177213
Chemical Nos.: 014501 (Mancozeb)
113501 (Metalaxyl)
EFGWB No.: 92-0763

MEMORANDUM

SUBJECT: Section 18 Emergency Use of Pace Fungicide for the
Control of Peronospora sparsa (downy mildew of roses).

Common Names: Mancozeb (70.0%); Metalaxyl (7.0%)

TO: R. Cool/ S. Stanton
Product Manager 41
Registration Division (H7505C)

FROM: Richard J. Mahler, Hydrologist *Richard J. Mahler*
Environmental Chemistry Review Section 1
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

THRU: Henry M. Jacoby, Chief *Elizabeth Jacoby*
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

THRU: Paul J. Mastradone, Ph.D., Chief *Paul J. Mastradone*
Environmental Chemistry Review Section 1
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Conclusions

The Texas Department of Agriculture is requesting a Section 18 emergency exemption to authorize the use of Pace (metalaxyl plus the manganese and zinc salts of EBDC-ethylene bisdithiocarbamate) to control downy mildew on roses in Texas.

The Agency believes that mancozeb has the potential to leach to ground water. The primary concern is with ethylene thiourea (ETU), a degradate of mancozeb which has been classified as a B2 carcinogen. The Agency also is concerned about ground water and surface water contamination by metalaxyl as a result of normal agricultural use. Accordingly, EFGWB concludes that the use of mancozeb and metalaxyl, may result in ground water and/or surface water contamination by these compounds and/or their degradates.

EFGWB notes that both metalaxyl (Subdue 2E) and mancozeb (Dithane) are registered for uses on roses to control other diseases.

Background

Mancozeb, a coordination product of zinc ion and manganese ethylene bisdithiocarbamate, is a member of the ethylene bisdithiocarbamate (EBDC) family. EBDCs are fungicides which are used to control diseases on a variety of vegetable, nut, field crops, turf, ornamentals, and as seed treatments. EBDCs were in Special Review because of a possible cancer risk to consumers from dietary exposure and to workers as a result of mixing, loading, or application exposure. In the Federal Register 03/02/92, the Agency announced its intent to cancel EBDC registration for use on apricots, carrots, celery, collards, mustard greens, nectarines, peaches, rhubarb, spinach, succulent beans, and turnips. The Agency also announced its intent to cancel all mancozeb products registered for home garden fruit tree and turf uses. Additionally, EPA intends to cancel products registered for other agricultural uses unless their registrations and labels are amended to reflect changes in use patterns specified in the Federal Register notice.

Metalaxyl is a systemic fungicide used on a wide variety of crops. Metalaxyl alone is applied to soil to control root and lower stem rots in citrus and avocado and also to control primary systemic infections of downy mildew in hops and in tobacco seed beds. Combined with protectant fungicides, it is used as a foliar spray for control of airborne plant diseases. It also is used as a seed treatment to control systemic downy mildews and damping-off in crops such as corn, peas, sorghum, and sunflowers. EFGWB believes that metalaxyl may leach to ground water as a result of normal agricultural use.

Discussion

1. The site to be treated will be roses being grown in containers by commercial growers or commercial nursery outlets located in the Blacklands, East Texas, Upper Coast, South Central, Coastal Bend or Lower Valley of the Texas Reporting Districts.
2. The product will be applied by ground equipment at the rate of 1.15 to 1.54 lbs ai/100 gal water, which is equivalent to 1.5 to 2.0 lbs of formulated product. The total expected acreage to be treated will be 50 acres (individual treatment sites are variable and range from a few containers to less than five acres at individual sites within the Reporting Districts) which will include about 5 million containers of roses.
3. Estimated amounts of formulated product to be used is calculated from the number of containers to be treated. A

maximum of of six applications/season will require about 5,400 kg (11,880 lbs) of formulated product or 4,200 kg (9240 lbs) of active ingredient.

4. The proposed labeling submitted to EFGWB in connection with this Section 18 was apparently accepted by The Agency on 8/26/89 and therefore predates the Federal Register notice of 03/02/92 which describes the results of the EBDC Special Review. It is not clear if the labeling submitted to EFGWB with the package reflects special risk reduction procedures required in the Federal Register notice.
5. The applicant argues that no other labeled product can provide as efficacious control of downy mildew on roses as Pace. Economically, the applicant estimates a potential loss of up to \$7-18 million if total crop loss occurs due to favorable disease conditions.

Environmental Fate Summary for Mancozeb

Parent mancozeb hydrolyzes rapidly at pH 5-9. However, the degradate ETU is stable to hydrolysis in this pH range. Neither mancozeb nor ETU is susceptible to photodegradation. Preliminary data indicate that aerobic soil metabolism is a primary route of dissipation for mancozeb and ETU with both compounds having half-lives of approximately 2 days in a silt loam. Parent mancozeb does not appear to be mobile in soil, but ETU and its degradate, ethylene urea (EU), are mobile.

Environmental Fate Summary for Metalaxyl

Metalaxyl is stable to hydrolysis and to photodegradation on soil and in water. It does not volatilize appreciably under laboratory conditions. In laboratory conditions, the half-life of metalaxyl in soil is about 40 days; under field conditions in California the half-life was 27-36 days. Metalaxyl and its degradates leach readily as determined in laboratory experiments. Metalaxyl does not accumulate in fish, but does accumulate in rotational crops. It has been detected in ground water in North Carolina and Florida. Metalaxyl also has been detected in surface water monitoring studies in the Sacramento River in two of three years of bimonthly sampling.