



# Department of Pesticide Regulation



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Director

## MEMORANDUM

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Governor  
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Environmental  
Protection Agency

TO: Denise M. Webster, Registration Specialist  
Pesticide Registration Branch **HSM-00013**

FROM: Michael H. Dong, Ph.D., CNS, DABT, Staff Toxicologist  
Worker Health and Safety Branch  
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DATE: October 27, 2000

SUBJECT: INSIGNIFICANT EXPOSURE ASSESSMENT FOR TERRAZOLE®

Under review for insignificant exposure assessment is a turf and ornamental fungicide used for control of root rot and stem type diseases caused by the Pythium and Phytophthora fungi. This product is Terrazole® (U.S. EPA Reg. No. 400-416) manufactured by Uniroyal Chemical. It contains 35% (by weight) etridiazole as the active ingredient (AI). Etridiazole was formerly registered as terrazole, which is listed as a carcinogen under Proposition 65. A Special Local Need (SLN) label was proposed for the 24(c) registrant Nurserymen's Exchange, and is the subject of this review.

**A review of the proposed SLN label indicated that *no significant acute, long-term, or lifetime worker (or human) exposure would result from the anticipated use of this product.*** The work activities demonstrated in the accompanying videotape also supports this conclusion.

As illustrated in the videotape, the application equipment is necessarily a *non*-pressure type handwand for drenching. The demonstration also showed that an applicator typically would treat no more than 30 potted plants per minute (i.e., 1 potted plant in every 2 seconds). The SLN label specifies that up to 6 oz. of the product be mixed in 100 gallons of water, and that up to 4 fl. oz. of this solution be drenched to one potted plant. These specifications together suggest that the maximum amount of etridiazole AI handled by each (mixer/loader)/applicator in a workday would be 0.5 lb [= (30 plants/min) x (60 min/hr) x (7 hr/workday) x (4 fl. oz. solution/plant) x (1 gallon/128 fl. oz.) x (6 oz. product/100 gallons water) x (35% AI by weight) x (1 lb/16 oz.)].

The dermal and inhalation exposure rates used as interim defaults have been 200 and 19 µg/lb AI handled, respectively, for a *low*-pressure handwand applicator wearing coveralls over normal work clothes (e.g., Dong, 2000). Container-labeled personal protective equipment (PPE) and clothing requirements for applicators and other handlers include long pants; a long-sleeved shirt; waterproof gloves; shoes plus socks; protective eyewear; and an approved dust/mist filtering respirator. The SLN label requires additional clothing which includes coveralls, rubber boots, and an apron. Due to these PPE and clothing requirements, the maximum absorbed daily dosage (ADD) for the applicator is likely to be less than 0.22 µg/kg/day [= {(200 µg/lb AI) x (0.5 lb AI handled/day) x (30% from eyewear/apron/boot protection) x (50% default dermal absorption) + (19 µg/lb AI) x (0.5 lb AI handled/day) x (10% from respirator protection) x (50% default inhalation uptake)} x (70 kg body weight)<sup>-1</sup>].

According to the SLN label, no applicator shall work more than 15 hours (equivalent to two workdays including time to be spent in mixing/loading, for preparation, etc.) in a 30-day period.



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This restriction results in an exposure frequency of no more than 24 days per year. The lifetime average daily dosage (LADD) thus would be  $0.008 \mu\text{g}/\text{kg}/\text{day}$  [=  $(0.22 \mu\text{g}/\text{kg}/\text{day ADD}) \times (24 \text{ days}/365 \text{ days}) \times (40 \text{ occupational years}/75 \text{ lifetime years})$ ]. Both the ADD of  $0.22 \mu\text{g}/\text{kg}/\text{day}$  and the LADD of  $0.008 \mu\text{g}/\text{kg}/\text{day}$  are below the insignificant exposure indices of  $0.3 \mu\text{g}/\text{kg}/\text{day}$  and  $0.004 \mu\text{g}/\text{kg}/\text{day}$ , respectively, for short-term acute or developmental type effects and lifetime cancer risk. These policy-based insignificant exposure defaults were set forth by this Branch (Donahue, 1996) for total daily and lifetime exposures to any pesticide without an established NOEL (no observed effect level) or cancer potency factor for all SB-950 required toxicology studies.

It is important to note that the dermal and inhalation exposure rates for using a *non*-pressure handwand sprayer are typically much lower than those assumed here for using a *low*-pressure handwand sprayer. (Surrogate exposure rates for non-pressure type handwand spray are not readily available.) On the other hand, this extra margin of safety should be sufficient to downplay, if any, the small additional doses from dietary intake, drinking water, and the like.

#### References

- Donahue JM, 1996. Parameters Defining Insignificant Exposure. HSM-96006. Worker Health and Safety Branch, Cal/EPA Department of Pesticide Regulation, January 26.
- Dong MH, 2000. Preliminary Exposure Assessment for Milestone Herbicide. Worker Health and Safety Branch, Cal/EPA Department of Pesticide Regulation, dated August 15.

cc: Charles M. Andrews