



Department of Pesticide Regulation



Paul Helliker
Director

MEMORANDUM

Arnold Schwarzenegger
Governor

TO: Denise Webster, Senior Pesticide Use Specialist **HSM-04019**
Pesticide Registration Branch

VIA: Joseph P. Frank, D.Sc., Senior Toxicologist *[original signed by J. Frank]*
Worker Health and Safety Branch
(916) 324-3517

FROM: Michael H. Dong, Ph.D., Staff Toxicologist (Specialist) *[original signed by M. Dong]*
Worker Health and Safety Branch
(916) 445-4263

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SUBJECT: INSIGNIFICANT EXPOSURE ASSESSMENT FOR PREV-AM ULTRA,
REGISTRATION TRACKING NO. 204005

Under review for insignificant exposure is a proposed label for the PREV-AM Ultra (U.S. Environmental Protection Agency [U.S. EPA] Reg. No. 72662-3) insecticide/fungicide product used on a variety of agricultural crops and ornamentals. Citrus Oil Products is the registrant of this borate product, which contains 0.99% (by weight) of sodium tetraborohydrate decahydrate (STBDH) as the active ingredient (AI).

Based on the following observations and considerations, **this review concludes that the proposed labeling, as written, is adequate to ensure use scenarios free of significant exposure potential.**

According to the proposed label (stamp received 12/11/2003), applications by air or through any type of irrigation system are prohibited. The label also requires applicators and other handlers to wear protective eyewear or goggles, long sleeved shirt, and long pants, waterproof gloves, shoes, and socks. The proposed restricted entry interval (REI) is 12 hours.

There are apparently no issues concerning dietary intake, since residues of STBDH are exempt from tolerance requirements for all agricultural commodities, provided that the use is in accordance with good agricultural practices (40 CFR 180.1121). For worker exposure, the daily dosage is well below the natural occurrence level (NOL) of 40 µg/kg/day determined earlier (Dong, 2003), which is considered to be equivalent to the insignificant exposure assumption level.

The daily dermal absorption rate was determined previously to be 1% for boric acid on intact human skin (Dong, 1999; Formoli, 1995). It also can be reasonably argued that the total (primarily dermal) exposure rate is not likely to exceed 200 mg/lb AI handled for almost all



groups of applicators or other handlers working in a field while wearing normal work clothes plus gloves. Therefore, the high-end absorbed daily dosage (ADD) for handlers at most would be $4 \mu\text{g}/\text{kg}/\text{day}$ [= (200 mg/lb AI handled, *high-end exposure rate*) x (40 fl oz/acre, *maximum label rate*) x (~ 0.07 lb/fl oz, *conversion factor*) x (< 5 acres/day, *maximum for backpack type*) x (0.99% AI/product by weight) x (1% *dermal absorption*) x (70 kg, *average body weight*)⁻¹].

Note that inhalation exposure is assumed to be negligible here in that it is typically no more than 5% of the dermal exposure for nonvolatile, nongranular pesticides (e.g., PHED, 1995), of which the STBDH insecticide/fungicide is one. Even if the daily acreage for airblast spray and some other types of ground applications can be several times greater than the 1 to 5 acres/day assumed above for backpack spray (depending on the actual treating required and the apparatus used, etc.), the high-end exposure rate for airblast applicators would be several times less than the 200 mg/lb assumed here). Furthermore, it is unlikely that any non-handheld equipment (for larger field operations) will be used since the label specifies that applicators should spray thoroughly to wet both the upper and the lower surface of the branches, leaves, and stems.

There are no dissipation data on chemical-/crop-specific dislodgeable foliar residues (DFR) for STBDH. However, for a conservative *rough* approximation, a 20% of the maximum label rate can be used as the default maximum DFR initial deposition (e.g., U.S. EPA, 1999; Dong, 2001). Therefore, mathematically the high-end ADD for exposure from any reentry activities is unlikely to exceed $0.7 \mu\text{g}/\text{kg}/\text{day}$ [= (40 fl oz/acre, *maximum label rate*) x (~ 0.07 lb/fl oz, *conversion factor*) x (11 $\mu\text{g}/\text{cm}^2$, *conversion factor*) x (0.99% AI/product by weight) x (20%, *high-end default*) x (10,000 $\mu\text{g}/\text{hr}$ per $\mu\text{g}/\text{cm}^2$ DFR, *high-end dermal transfer rate*) x (8 hrs *per workday*) x (1% *dermal absorption*) x (70 kg *average body weight*)⁻¹]. As reasoned below, in practice the high-end ADD for reentry exposure would be much less than the value calculated above.

The dermal transfer rate (TR) of 10,000 assumed above is a high-end estimate (e.g., see U.S. EPA, 2000) especially since only the following crop groups are included: *root* (sugar beet, potato, etc.); *legume* (bean, pod, etc.); *brassica/cole* (broccoli, cauliflower, etc.); *cucurbit* (cucumber, pumpkin, etc.); *bulb* (onion, garlic, etc.); *leafy* (celery, lettuce, etc.); *small fruit* (strawberry, etc.); *fruiting* (e.g., egg plant, tomatoes); *berries* (blackberry, blueberry, etc.); and *ornamentals* (outdoor nursery plants).

Even if for some unforeseen reason the TR is underestimated here by two-fold, the DFR level is likely overestimated by this much by using the above default initial deposition. In many instances, the DFR by day 1 post-application are substantially less than those available within the first few hours. Here the label-specified REI is 12 hours, which in practice tends to yield a REI of at least 24 hours in order for a reentry workday of 8 hours to take place.

References

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