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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

VIA ELECTRONIC MAIL

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American Mosquito Control Association and their Membership
Mr. Stanton Cope, President of American Mosquito Control Association

Subject: Malathion Aerial Mosquito Control Application Parameters

As part of its ongoing pesticide reevaluation program, the United States Environmental Protection Agency (EPA) recently completed the malathion draft human health risk assessment for all uses, including the aerial mosquito adulticide use. This draft assessment is based on the current state of science, available exposure and toxicity data, and current labeled maximum application rates and parameters for malathion. The draft human health risk assessment is intentionally conservative to be protective of the most sensitive population, which in this case is children from one to two years old. In other words, the pesticide application is evaluated considering the highest possible exposure. For mosquito control uses, the draft assessment shows that the estimated exposures from aerial application exceed EPA's level of concern on the day of application (*i.e.*, day zero). (Applications made by ground equipment, which employ lower application rates, are not of concern.) Providing recommendations to address the potential concerns identified in a draft assessment at this stage of registration review is atypical. However, considering the emergence and persistence of mosquito borne pathogens throughout the United States and territories, the agency believes that it is prudent to advise applicators on how aerial applications of malathion can be modified to better protect residents.

EPA has evaluated how the aerial mosquito use of malathion can be modified to result in lower exposures and eliminate potential safety concerns. In general, aerial applications that result in deposition of malathion on the ground equal to or less than 0.46 ug/cm^2 do not pose a potential safety concern. This deposition level can be accomplished by making slight modifications to currently labeled application directions while maintaining efficacy and effectiveness. These potential modifications include adjusting the minimum height of the aerial application and the maximum droplet size of the spray.

Currently registered labels allow for malathion to be aerially applied at a maximum rate of 3 fluid ounces product/Acre (fl. oz/A). The agency evaluated combinations of release heights and droplet sizes that would not cause any potential safety concerns for the maximum label rate (see Table 1).

Table 1. Malathion Aerial Application Parameters Resulting in Safe Level of Exposure at Current Maximum Label Rate	
Minimum Plane Release Height (feet)	**Maximum Spray Droplet Volume Median Diameter (VMD) (micrometer)**
Application rate of 3 fl. oz product/A (0.23 lb ai/A)	
250	35
300	45

The EPA is aware that aerial application parameters can vary widely across the United States. Furthermore, based on input from mosquito control applicators, efficacious and effective malathion applications can be achieved at rates as low as 1 fl. oz product/A. Therefore, the EPA evaluated additional application scenarios at two alternative rates (see Table 2) that will reduce exposure to malathion and eliminate potential safety concerns (*i.e.,* deposited ground residues ≤ 0.46 ug/cm^2). If applicators choose to apply the product at the lower rates (*i.e*., 1.5 or 1 fl. oz product/A), these applications must maintain efficacy and be supported by efficacy data.

Table 2. Malathion Aerial Application Parameters Resulting in Safe Level of Exposure for Alternative Rates	
Minimum Plane Release Height (feet)	**Maximum Spray Droplet Volume Median Diameter (VMD) (micrometer)**
Alternative Application rate of 1.5 fl. oz product/A (0.115 lb ai/A)	
200	40
250	40
300	55
Alternative Application rate of 1 fl. oz product/A (0.077 lb ai/A)	
150	35
200	45
250	50
300	70

As mentioned above, the draft human health risk assessment reflects the potential for highest possible exposure based on the current labeled maximum application rates and parameters. In other words, all of the following conditions must occur simultaneously in order for a child to experience the estimated exposure calculated in the draft risk assessment:

- Lives in an area directly treated;
- The maximum labeled rate of the pesticide is applied per acre (3 fl. oz product/A), at the lowest height (100 ft), using the largest mean VMD droplet size (60 micrometers);
- Application is made during calm weather and there is nothing to hinder deposition on the ground (e.g., trees);
- Residues deposited on the ground are assumed to not dissipate (despite data that show rapid dissipation);
- On the day of treatment, a child (1-2 years old) engages in rigorous play outside in treated areas resulting in high skin exposure and a high rate of contact.

EPA is aware that under actual use conditions, the exposure encountered by a child is likely lower than estimated in the draft risk assessment. In addition, the EPA is aware that certain

mosquito control districts already implement measures that likely result in lower exposure (e.g., smaller droplet sizes, higher release heights, lower rates, application in the evening, etc.).

The malathion draft human health risk assessment was published to the federal docket for public comment at www.regulations.gov in docket EPA-HQ-OPP-2009-0317. If you have specific comments or additional information that may inform the draft risk assessment, we encourage you to submit any such comments to the docket. After consideration of public comments, the EPA will propose any necessary risk mitigation decisions and associated label changes in a Proposed Interim Decision (PID). EPA expects to reach a final interim decision in 2017. In addition to the AMCA, this letter has been shared with EPA regional offices, states, tribes, the Center for Disease Control (CDC), and will be posted to the public docket.

If you have any questions please contact Steven Snyderman of my staff. He may be reached by email (snyderman.steven@epa.gov) or phone (703-347-0249).

Sincerely,

Yu-Ting Guilaran, P.E.
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