

### **What is Malathion and how is it used by CMAD?**

Malathion is an organophosphate insecticide that is registered by the EPA to control adult mosquitoes. It is also widely used to control a variety of other insect pests on numerous agricultural crops.

All pesticides used or sold in the U.S. must be registered by the EPA. Before registration, each product undergoes an extensive scientific assessment to determine that it poses no unacceptable risks to human health or the environment, and that the product is effective.

Malathion is applied using ultra-low volume (ULV) equipment (the fogger) by ground. The ULV equipment creates a very fine mist with a limited drift zone. Fogging is done from dusk until around 1:00 a.m. to reduce the likelihood of killing beneficial insects and when people presence outside is lower. Even for someone who is outside during a fogging application, this application rate results in estimated exposures that are much lower than the exposures that produce adverse health effects in animal tests.

The decision to spray a specific area to control mosquitoes is made based on the number of adult mosquitoes caught in traps located throughout the District or if disease is found in the mosquitoes trapped (WNV, encephalitis). The pesticides are applied by people trained and licensed for the task as per state requirements. Only pesticides registered by EPA can be used. CMAD uses Malathion because it has the longest record of studies on health impacts, efficacy, and environmental impacts. The week before fogging begins, an announcement is sent to the local media and all communities within the District to inform the public so that individuals may take measures to minimize their exposure.

### **What are the health effects of Malathion?**

It has been registered for use since 1956 and is periodically re-evaluated for safety concerns, proposals for new uses, etc. The last evaluation was completed in 2006; special attention was paid to its effects on children.

The EPA found Malathion acceptable for use in controlling mosquitoes that pose a public health hazard. While recent scientific information indicated that young laboratory animals are more sensitive to the toxic effects of Malathion than adult animals, the amount of Malathion ingested by the young animals far exceeds the amount that children might be exposed to as a result of the use of Malathion. The re-evaluation specifically considered children's potential exposure to Malathion through skin contact with treated outdoor surfaces while crawling and playing and through incidental ingestion from behaviors such as hand to mouth transfer as well as inhalation exposure.

### **If I'm pregnant, can the spraying affect this pregnancy or harm my baby?**

Studies conducted in California following a spraying program with corn syrup bait containing Malathion to control Mediterranean fruit flies showed no connection between Malathion spraying and extra risk of miscarriage or birth defects. As with chemical exposures in general, pregnant women should take care to avoid exposures to Malathion when practical.

Although adverse developmental effects were observed in offspring of laboratory animals given large amounts of Malathion, these amounts far exceeded what individuals would be exposed to from the fogging of Malathion in a mosquito control program.

**Some people are more likely than others to experience symptoms after they have been in contact with Malathion (e.g., individuals who have asthma, other respiratory ailments, compromised immune systems or multiple chemical sensitivity).**

Most people, even those with medical conditions, would not be expected to experience any symptoms when Malathion is sprayed for mosquito control.

Exposure can be minimized through measures such as remaining indoors with windows and doors shut during and immediately after fogging. If for some unforeseen reason an individual has been overexposed to Malathion, they could possibly experience short-term effects such as eye, skin, nose or throat irritation, nausea or breathing problems. If any of these effects are experienced, people should seek attention from their health care provider.

**What are the potential effects on the environment?**

The EPA has determined that Malathion degrades rapidly in the environment, especially in moist soil, and displays a low toxicity to birds and mammals. Malathion has a half-life in soil of less than 1 day and in water of 0.5 to 19 days. It is not persistent on foliage, with a foliar half-life of 5.5 days. It also breaks down rapidly in air, with a half-life of 1.5 days. CMAD makes every effort to avoid fogging over streams, ponds, etc.

**New York banned Malathion; why is CMAD using it?**

New York only banned Malathion use on or near certain waterways or potential runoff areas into commercial waterways. It is still used for controlling adult mosquitoes throughout the state.

**There are plant-based insecticides available to control mosquitoes. Why not use them?**

Because Malathion has recently undergone a re-evaluation, it has the most comprehensive and up-to-date data package and safety profile of all products registered to control adult mosquitoes. This re-evaluation concluded that Malathion continues to be acceptable for this use, based on the latest available data and risk assessment standards, including additional protection for children. Kontrol is another type of pesticide used for fogging. It is a synthetic pyrethroid (a chemical based on a naturally occurring insecticide). Since CMAD has not seen any resistance to Malathion by adult mosquitoes and since Kontrol costs over twice as much, CMAD uses Malathion to control adult mosquitoes.

**You're poisoning more people with Malathion than you're preventing from getting WNV.**

Again, the application rate (or dose) used is far less than the dose used in animal research that caused adverse health effects. Thus far, people have only presented anecdotal evidence of adverse health effects; none have sought medical confirmation of Malathion poisoning. We have no way of being able to prove how many human WNV cases have been prevented other than looking at other states without a mosquito abatement program in place. In areas with similar environment and population density as CMAD but without an abatement program, human cases number in the hundreds.

The guiding principal in toxicology is from the Swiss doctor known as Paracelsus: “All substances are poisons; there is none which is not a poison. The right dose differentiates a poison from a remedy.” CMAD uses the lowest effective dose of Malathion to kill adult mosquitoes. It is hundreds of times less than the doses that cause harm in animal studies.